
Socio-cognitive basis of positive bias in evaluating work teams performance

Eduardo Infante Rejano

&

Manuel Marín Sánchez

Sevilla, April 2nd, 2008

Address correspondence to:

Manuel Marín Sánchez

Department of Social Psychology, University of Sevilla

Camilo José Cela S/n. - 41018 Sevilla, Spain

E-mail: mmsanche@us.es

Fax: (34) 954 55 77 11

Phone: (34) 954 55 77 05 – 954 55 98 81
Socio-cognitive Basis for Positive Slant in

Work Group Performance Appraisal

Sevilla, April 2nd, 2008
Abstract

Considering the anchoring and adjustment effect on social inference judgments (Tversky & Kahneman, 1974) and Chaiken’s (1987) heuristic-systematic model, the present research examined the role of group design and in-group interaction on individual performance appraisal. Specifically, these variables were analysed in relation to the emergence of positive slants. It was hypothesized that emotional criteria used by members to form and manage their groups would produce higher positive slant because their adjustment processes were supported by the heuristic processing route. A sample of 83 university students (72.2% women, 27.7% men) was distributed in 30 working groups of various sizes. The mean age was 23.3. Among other statistical procedures, factor analysis was used in order to test the hypothesis. Results seemed to support our hypothesis as to the existence of three different information processing routes in social inference related to judgment according to the previous anchoring effect. As it was predicted by literature revision (Van-Leeuwen & Van-Knippenberg, 2002; Van Baaren, Holland, Kawakami, & van Knippenberg, 2004, Lokan, 2006), subjects involved in the central or systematic route estimated their in-group efforts with less positive slant. These findings are discussed in relation to group assessment systems and policies in organizational settings.

Key words: heuristic processing, performance appraisal, positive slant, socio-cognitive processes.

Resumen

Teniendo en consideración el efecto de anclaje y ajuste en las evaluaciones de inferencia social (Tversky y Kahneman, 1974) y el modelo heurístico-sistemático de Chaiken (1987), la presente investigación examina el rol del diseño de grupo y el tipo de interacción endogrupal en la evaluación del desempeño laboral. Específicamente, se analizó la influencia de estas variables en la génesis de sesgos de positividad. Se hipotetizó que los criterios emocionales utilizados por los miembros grupales para la formación y gestión del grupo produciría mayor sesgo de positividad al involucrar una ruta de evaluación heurística. Un total de 83 estudiantes universitarios tomaron parte en el proceso de recogida de datos. La muestra fue dividida en 30 grupos de trabajo de diversos tamaños. La edad media fue de 23,3 años siendo el 72,2% mujeres. Entre otros análisis, se realizó un análisis factorial para evaluar las hipótesis planteadas. Los resultados parecen apoyar la existencia de tres rutas diferentes de procesamiento de la información en situaciones de inferencia social según el efecto de anclaje. Acorde con la revisión literaria (Van-Leeuwen & Van-Knippenberg, 2002; Van Baaren, Holland, Kawakami, & van Knippenberg, 2004, Lokan, 2006), se constata que los sujetos anclados en rutas centrales o sistemáticas estimaron con menor sesgo de positividad sus esfuerzos endogrupales. Estos resultados son analizados en relación con los sistemas y políticas de evaluación grupal en el seno de las organizaciones.

Palabras claves: procesamiento heurístico, evaluación del desempeño, sesgo de positividad, procesos socio-cognitivos.
Introduction

Many present-day organizations tend to opt for work team units rather than organizational leaders in their working processes. The complexity of work and the high rate of change of environmental conditions are forcing workers to join efforts inside multidisciplinary work teams (see, Peiró, Prieto & Roe, 1996). Work supervisors or evaluators have then increased their duties by having to learn how to manage work groups efficiently. One of the most important issues they face is performance appraisal, a process in which incoherence is growing due to the tendency of organizations to reattribute members of work teams only individually. If it is widely accepted to treat groups as whole units, we have to reinforce group outputs and therefore assume the risk of evaluators underrating performance of individuals.

Due to individual differences among workers, group members may perceive an imbalance between individual performance and final group effectiveness calculated by supervisors. This appraisal inaccuracy could spread the common idea that working in-groups is not only time-consuming and unprofitable but also allows some individuals to take advantage of others (e.g. social loafing phenomenon, free-trip effect). Many authors have warned against the problematic consequences of wrong personnel evaluations. For example, Larson (1989) stated that assessment discrepancies between supervisors’ assessment and self-appraisal could create interpersonal friction and decrease employee work satisfaction. This assumption is more evident when evaluators have little close contact with others due to hard working conditions or group managers’ lack of skills. When supervisors’ assessment is limited, self-appraisal appears to be a very convenient form of evaluation (Franzoi, 2000). Nevertheless, self-appraisal is also influenced by cognitive slants that need to be considered.

In the present work, self-appraisal is defined as the assessment process used by group members to evaluate both their own performance and the efforts of the group to which they belong. Self-appraisal has several advantages for employee development because the
individual can identify his or her own needs for improvement and view evaluation as a stress-less task useful for feedback processes (Harris & Schaubroeck, 1988; Berry, 1997). Despite its utility, self-appraisal is not commonly used for work performance assessments and rarely used alone. When workers assess their performance they tend to show positive slants in order to preserve self-esteem.

According to self-serving bias, individuals select or distort information by the influence of previous cognitive variables such as expectancies, goals, past experience, etc. Workers and supervisors are *cognitive misers* who lose important information in order to achieve appraisal agreements. Furthermore, members who are more accurate in self-assessments of work actually performed more effectively (Randall, Ferguson & Patterson, 2000). Therefore, it seems relevant to increase our knowledge on where individuals place their attention when trying to assess their own work and effort.

*Research framework*

Following Hackman’s (1987) model of work-group effectiveness, there are several elements characteristic of any work group that make the group highly productive. The group is embedded in a dynamic temporal social system that operates in three times: Inputs *(time 1)* → Processes *(time 2)* → Outputs *(time 3)*. Self-appraisal process starts in *(time 3)* when workers have to guess the amount and quality of their final in-group results. Nevertheless, this process is conditioned by the previous two times (recall data, experiences, goals, objectives,…).

For example, motivational processes, such as individual or group goal setting, can be described in *(time 1)*. Traditional classification on work group design have distinguished between affective and utilitarian work groups (Munné, 1982), referring to the criteria used by members to choose working partners (free-election in work group creation may let us move away from traditional, Tayloristic principles of work design). As utilitarian group creation is based on work-related
issues (past work, members’ knowledge, individuals’ skills…) rather than on subjective matters (friendliness, interpersonal attraction, informal leaders…), we can assume that utilitarian groups would create less positive slant.

In time 2, data processing routes may influence work group processes in individual performance appraisal. Bearing in mind Chaiken’s heuristic-systematic model (a common model in persuasive communication literature), systematic data processing would probably consider cognitive aspects and information exchange inside a work-group and dismiss emotions and feelings in judgemental social inference. We assume that this would depend on the type of interpersonal and social interaction lived by its members as reflected in cohesiveness measurements. As an extension of this model, we have also considered the possibility of a mixed route in which members would consider both types of criteria.

Moreover, time 1 and time 2 can be related according to certain cognitive heuristics. Heuristics are simple rules and elemental cognitive strategies that can be used to quickly solve problems. Time pressure, complex environment, amount of relevant information, and limitations in human informational processes all force subjects to use heuristics in order to make social inference judgments. One of these heuristics deals with the “anchor-adjustment phenomenon” presented in Tversky and Kahneman’s (1974) judgemental heuristics.

The anchoring process has been proposed to explain a wide array of judgmental phenomena in social psychology (see Mussweiler, 1997). Although little is known about the psychological mechanisms that mediate this effect its impact has also been found in self-efficacy estimations (Cervone & Peake, 1986; Switzer & Sniezek, 1993). The effect occurs when a critical judgment is influenced by a prior consideration of an “anchor” stimulus. Therefore, people may estimate by starting from an initial value that is adjusted to achieve a final answer. This anchor may either constitute a concrete stimulus or a numeric value and the critical judgment may be a categorical or an absolute one. The plausible explanation of this effect describes the idea of an insufficient adjustment from a starting point for which subjects
determine whether it is too low or too high and then adjust in the appropriate direction until the first acceptable value is found. Furthermore, insufficient adjustment occurs only when the anchors were self-generated (Epley and Gilovich, 2001). However, the phenomenon has been also demonstrated using plausible, acceptable anchor values (e.g. Strack & Mussweiler, 1997) meaning that the are no “stop criteria” for adjustment process. Most of the common studies on anchoring effects have used numeric values or rational information in cognitive settings.

Applying the anchoring effect to in-group performance appraisal means that initial variables of the group may serve as assessment criteria to individual performance appraisal. Inside a group, selection criteria to form the group could act as a starting point distinguishing between affective and utilitarian variables (Munné, 1982). Emotional criteria is frequently used by students due to the common tendency of choosing friends rather than “experts” in educational settings when trying to achieve a task. In their inner relationships, members would rather process the variables that inform about these previous ones to be able to assess themselves and the whole group. In doing so, emotional criteria – although important to achieve high work performances- would not be convenient to use because it biases individuals’ data processing to non-relevant information. In a study by Parsons, Liden and Bauer (2001), job-related characteristics did not affect participants’ impressions by distorting information to confirm goals. The subsequent cognitive adjustment made by the member in the inference judgment would probably deal with variables next to that previous emotional anchor – that is, friendly relationships–and therefore, not considering non-affective information directly related to the object (ideas produced, task-information exchange, information gathering, formal communication…). The effect of the in-group serving expectancy biases on judgment is moderated then by the processing goal (Van-Knippenberg et al., 1997). Devos (1998) has recently found a relationship between in-group bias and dimensional relevance, that is, the extent to which individuals used specific dimensions to establish “positive social identity.” Similar efforts were made in Van-Leeuwen and Van-Knippenberg (2002) when trying to
determine the role of previous group goal in social matching evaluations. These authors suggested that when there was no specific group goal, the participants matched their own performance to the performance expected from other group members.

The individual’s assessment inaccuracy may appear because the anchor used placed the subject into heuristic routes in which information adjustment is made by emotional, non-related criteria. On the other hand, an individual performance appraisal would follow a central or systematic route for social inference processes when considering task-related criteria and therefore anchoring from utilitarian criteria. We have also considered the possibility of a mixed route in which the individual would consider both types of criteria. According to Van-Knippenberg (1999), in-group messages can be processed heuristically / systematically depending on social context of group membership. Therefore, we hypothesized that taking one of these routes will depend upon perceived variables of inside life group such as group cohesion, frequency of in-group interaction, and individual’s group identification.

The present investigation analyses the impact of the group design and the type of interaction on individual performance appraisal. Specifically, we explore the anchoring-adjustment effect on different data processing routes.

**METHOD**

*Participants*

The sample consisted of 83 university students organized in 30 work groups of different sizes (2 up to 5) to perform a field project on “Recruitment and Personnel Selection.” The sample consisted of 60 women (72.2%) and 23 men (27.7%). The average age was 23.6 (Sd=5.4). All subjects were students in the second year of Labor Relations (a three-year program of study). These groups can be defined as quasi-formals, temporaries, and *ad hoc*. The mean of
in-group contacts was measured in 7 sessions per month of 3.3 hours each during a 3 months period.

Variables

Group design: Groups were conceptualized as the criteria used by the member to join their groups. Different criteria used by members were then classified in three type of groups: (1) affective groups, when affective criteria was primarily used to form the group (e.g. friendship, identification, personal attractiveness,…); (2) utilitarian groups, that is, groups formed using task-oriented criteria (e.g. past works, knowledge on topic, member’s initial qualifications, etc); (3) by chance groups, which are formed without a certain criterion (for example, by sitting together).

Type of interaction: Interactions were defined as the kind of relationships most perceived by the member inside his group. It was indirectly operationalized by the difference between emotional and task-related cohesiveness. A group could then be a (1) highly emotional cohesive group if most of his group unity was based on affective relationships or a (2) highly task-oriented cohesive group, where most of his group unity was based on working relationships. A third type of interaction referred to the inexistence of differences between cohesion was included as a “mixed cohesion”. For these purpose sociometric measurements were used as well as a direct numeric value obtained by the estimated total hours joined in-group (number of session per month x hours per session x number of months).

Positive slant: Defined as the inaccuracy between individual performance appraisal and supervisor’s (teacher) final assessment. Two positive slants were calculated considering (1) own performance (self) and (2) group outcome (group). As both indexes were highly correlated
(ρ=.525, p<.000), only positive slant related to the group outcome was used in the data analysis. For our research purpose, individual identification with the group was assured.

**Procedure**

At the beginning of the academic year, students were asked to form groups in order to make a class project. Subjects were absolutely free to join with any other subjects within the stipulation that the groups should range from 2 to 5 members and that no members would be allowed to change groups once the work began. The maximum period of work took from October 2006 to May 2007.

Individual performance appraisals were collectively obtained at several times using the same place (noiseless classroom) and the same instructions. Participants – who had already handed in their projects- were informed about our purpose of recording their opinions on how well they did in their projects both individually and in group. Before making the assessments, students answered several questions related to the group design and type of interaction. They also were involved in a sociometric test in which they had to answer the following: What member of your group would you prefer to (1) go out for a drink with? And (2), work with on a future class project?. Subjects were identified with a number. Subjects were aware of the purpose of this procedure. It was supposed that this identification would start and feed the anchoring process. Finally, the subjects had to evaluate their own performance and their group result expected using a ten-point scale. It was firmly stated that their evaluations would not influence their real (teacher’s) assessments at all.

**RESULTS**

According to our literature revision, we have hypothesized that subjects involved in central rather than heuristic routes would create less positive slant when doing judgmental social inferences. Furthermore, the election of one of these processing routes would depend on
the individuals’ criteria to design their group (anchor) and the type of interaction between them (adjustments). In order to test the hypothesis various analyses were carried out using the statistical package SPSS+ for PC. A cluster analysis was made using the two co-variables group design and type of interaction in order to identify the data processing routes. Table 1 shows the three possible anchoring-adjustment processes that were individually used by the sample. Most of the students started with an emotional anchor stimulus – affective groups (77.1 %) but 32.8% of them moved on to task-related processing and 40.6% were finally involved in the mixed one. Utilitarian groups were fewer (13.25%), and the majority (72.7%) fell off to mixed adjustment processes. Finally, those groups with no criteria formation - that is, groups by change (9.6%) - were all engaged in mixed adjustment processing.

(insert table 1)

Relationships between final group cohesion, age, group interaction frequency (in hours per year) and positive slant are shown in Table 2. In relation to sex, chi-square value indicated that there are no significant differences among the categories, that is, different type of cohesiveness.

(insert table 2)

Even more, no particular distribution was found between this latter variable and the age or the positive slant whose coefficients (F Snedecor) were not high enough. There was only a significant relationship between the frequency of group interaction and the final group cohesion. Therefore, individuals inside highly emotional cohesive groups interacted more than those in highly task-related cohesion groups (standard error = 14.93; P<0.01).

The first table also showed how highly task-related cohesive groups made fewer positive slants than those subjects did in other group’s relationships. A factorial analysis was
made – see Tables 3a, 3b & 3c- in order to determine the direct and joint effects of group design and type of interaction (cohesiveness) on positive slant.

(Insert table 3a)

Factorial analysis showed that both independent variables are significantly related to positive slant. The adjustment process (cohesiveness) had a higher effect on the dependent variable than the anchor stimuli (group design). Even more, the interaction effect between the independent variables –that is, the inferential processing route- showed higher significant differences. The model obtained had an R squared of .166 (16.6% of variance explained). To explore more deeply the relationships between variables, descriptive values are shown in the next two tables.

(Insert table 3a)

According to the results, utilitarian groups had fewer positive slants than the affective or by chance group. Those individuals who interacted inside highly task-related cohesive groups seemed to assess group performance more accurately. Interactive effects between these two variables showed that the higher positive slant was found in those individuals belonging to affective groups. However, the highest positive slant occurred in those individuals placed in utilitarian groups and making adjustment processes inside mixed salience cohesive groups.

(Insert table 3c)

Discussion
Two different common theories – anchoring-adjustment phenomenon and the heuristic-systematic model – were used in order to explain positive slants on individual performance appraisal (Grau & Agut, 2002; Loken, 2006). It was hypothesized that the initial criteria in creating groups (anchor stimuli) would follow a certain adjustment process related to the type of interaction within the work group. It was also foreseen that the idea that anchoring-adjustment effect would be ill-advised when non-related factors – affective, emotional factors – were considered in the performance appraisal process. This inference route was said to be heuristically made compare to the systematic one. A third information processing route was identified as a mixed route which dealt with both types of factors.

Data obtained through a Spanish sample of 83 university students confirmed our hypothesis. Individuals inside affective groups obtained worse accuracy in their group evaluations. It was proved that the type of route was an important factor that explained positive slants in self-appraisal processes. However, the anchoring process did not force everyone to a certain adjustment, therefore supporting the idea that the two phases of the anchoring-adjustment phenomenon are not linked. When people have to evaluate important matters, they might force themselves to gather as much information as possible and this could distort them from the initial anchor. However, the graphic 1 shows that this removal from the anchor does not affect the evaluation inaccuracy. In other words, independent of the anchor stimulus, only individuals that were involved in task-related salient cohesive groups were less inaccurate. At the same time, those in this latter situation that started to work in utilitarian groups showed the most precise assessments.

(insert graphic 1)

Policy makers and human resources managers should take these results into account. When managing work groups, especially autonomous work groups, they should carefully
inform their members on what evaluation variables they must consider in order to create their group and coordinate their efforts. This is calling for a continuous evaluation process of work group performance aspects with a particular emphasis on both internal (technical aspects of the work being done) and external (social relationships among members) matters. Therefore, it is not just how the work has been finally finished but also how the work process is being done what should be considered in work group assessments.

Nevertheless, we have assumed high social shareness among groups, that is, an assumption that an individual will strongly identified with their in-group’s cognitions and feelings (as described in 2000 by Tindale & Kameda). Further research is needed in order to determine the role of possible co-variables such as individual identification with the group to be able to explain the change in social inference judgments.

References


### Adjustment Process

<table>
<thead>
<tr>
<th>Anchoring</th>
<th>Goal/Cohesion</th>
<th>Mixed</th>
<th>Task-related</th>
<th>Emotional</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection criteria in group design</td>
<td>By chance</td>
<td>8</td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Utilitarian</td>
<td>8</td>
<td>3</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Affective</td>
<td>26</td>
<td>21</td>
<td>17</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>42</td>
<td>24</td>
<td>17</td>
<td>83</td>
</tr>
</tbody>
</table>

**Type of route**

- Mixed
- Systematic
- Heuristic

*Table 1. Possible processing routes on social inference judgments*
**Table 2. Relationships between the research’s variables**

<table>
<thead>
<tr>
<th>Salient Group Cohesion</th>
<th>N</th>
<th>Mean &amp; Sd</th>
<th>Mean &amp; Sd</th>
<th>Mean &amp; Sd</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mixed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prosp.Freq</td>
<td>11.6</td>
<td>30.4</td>
<td>23.09</td>
<td>4.90</td>
</tr>
<tr>
<td>% Group</td>
<td>28.6%</td>
<td>71.4%</td>
<td>28.6%</td>
<td>71.4%</td>
</tr>
<tr>
<td>% Sex</td>
<td>52.2%</td>
<td>50.0%</td>
<td>52.2%</td>
<td>50.0%</td>
</tr>
<tr>
<td>% total</td>
<td>14.5%</td>
<td>36.1%</td>
<td>14.5%</td>
<td>36.1%</td>
</tr>
<tr>
<td><strong>Task-related</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prosp.Freq</td>
<td>6.7</td>
<td>17.3</td>
<td>24.37</td>
<td>6.53</td>
</tr>
<tr>
<td>% Group</td>
<td>33.3%</td>
<td>66.7%</td>
<td>33.3%</td>
<td>66.7%</td>
</tr>
<tr>
<td>% Sex</td>
<td>34.8%</td>
<td>26.7%</td>
<td>34.8%</td>
<td>26.7%</td>
</tr>
<tr>
<td>% total</td>
<td>9.6%</td>
<td>19.3%</td>
<td>9.6%</td>
<td>19.3%</td>
</tr>
<tr>
<td><strong>Emotional</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prosp.Freq</td>
<td>4.7</td>
<td>12.3</td>
<td>23.70</td>
<td>5.04</td>
</tr>
<tr>
<td>% Group</td>
<td>17.6%</td>
<td>82.4%</td>
<td>17.6%</td>
<td>82.4%</td>
</tr>
<tr>
<td>% Sex</td>
<td>13.0%</td>
<td>23.3%</td>
<td>13.0%</td>
<td>23.3%</td>
</tr>
<tr>
<td>% total</td>
<td>3.6%</td>
<td>16.9%</td>
<td>3.6%</td>
<td>16.9%</td>
</tr>
</tbody>
</table>

\( \chi^2 = 1.254 \)

\( P > 0.05 \)

\( F = 0.426 \)

\( F > 0.05 \)

\( F = 7.148 \)

\( P < 0.01 \)

\( F = 2.032 \)

\( P > 0.05 \)
<table>
<thead>
<tr>
<th>Source</th>
<th>SC type III</th>
<th>gf</th>
<th>Quadratic mean</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group design</td>
<td>13,523</td>
<td>2</td>
<td>6,762</td>
<td>3,297</td>
<td>.042</td>
</tr>
<tr>
<td>Salient Cohesiveness</td>
<td>29,030</td>
<td>2</td>
<td>14,515</td>
<td>7,078</td>
<td>.002</td>
</tr>
<tr>
<td>Design x Cohesion</td>
<td>17,730</td>
<td>1</td>
<td>17,730</td>
<td>8,646</td>
<td>.004</td>
</tr>
<tr>
<td>Error</td>
<td>155,857</td>
<td>76</td>
<td>2,051</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1153,170</td>
<td>82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted Total</td>
<td>186,801</td>
<td>81</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table 3a. Factorial analysis between independent and dependent variable (positive slant).*
<table>
<thead>
<tr>
<th>Group design</th>
<th>%</th>
<th>Mean</th>
<th>Error</th>
<th>α= 5%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Low limit</td>
</tr>
<tr>
<td>By chance</td>
<td>9.6</td>
<td>3.457</td>
<td>.541</td>
<td>2.379</td>
</tr>
<tr>
<td>Utilitarian</td>
<td>13.2</td>
<td>2.354</td>
<td>.485</td>
<td>1.389</td>
</tr>
<tr>
<td>Affective</td>
<td>77.1</td>
<td>3.438</td>
<td>.182</td>
<td>3.076</td>
</tr>
</tbody>
</table>

Table 3b. Factorial analysis between work group design and positive slant.
**Table 3c. Factorial analysis between salient cohesiveness and positive slant.**

<table>
<thead>
<tr>
<th>Salient cohesiveness</th>
<th>Mean</th>
<th>Error</th>
<th>Low limit</th>
<th>High limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed</td>
<td>3.762</td>
<td>.264</td>
<td>3.236</td>
<td>4.288</td>
</tr>
<tr>
<td>Task-related</td>
<td>2.026</td>
<td>.442</td>
<td>1.146</td>
<td>2.906</td>
</tr>
<tr>
<td>Emotional</td>
<td>3.141</td>
<td>.347</td>
<td>2.449</td>
<td>3.833</td>
</tr>
</tbody>
</table>
Graphic 1. Comparison between types of processing route used by members in different group designs.