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Epistemic Motivation and Groups' Reaction to Change: Effects of Need for Cognitive Closure on Norms Transmissions in a Laboratory Micro-Culture

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Abstract

The role of need for cognitive closure (NCC, Kruglanski, 1989, 2004) plays in the transmission of a group norm is studied applying the Jacobs and Campbell's (1961) experimental generation paradigm. It is hypothesized that the permanence tendency, linked to an high Need of Cognitive Closure produces a greater resistance to change of experimentally induced group norms. Two studies were conducted on a total of 320 participants In the first, NCC was induced with noise of the environment in which task is performed (vs. control condition without noise), in second study NCC was measured with the NCC Scale, Italian version, and an high score of participants (vs. control condition represented by participants with low score) is used. Results showed that participants in condition of high NCC (both experimentally induced and measured) change less, through generations, the experimentally induced norm, and that this effect is produced by the conformity of the newcomers of each generation.

Introduction

Within the framework of Lay Epistemology Theory (Kruglanski, 1989), Need for Cognitive Closure was defined as a desire for a quick firm answer (any answer) to a question (Webster & Kruglanski, 1998). from this point of view, the term "need" is used to indicate a motivational tendency or an inclination, rather than a tissue deficit, that is function of an individual weight of costs and benefits of a closure (or a lack of closure) of the epistemic process (Kruglanski & Webster, 1996). Need for closure can be situationally induced or represent a stable trait of individual difference, and varies along a continuum of motivation of closure, ranging from an high need to obtain closure to a strong need to avoid closure. The antecedents of the epistemic motivation towards a non specific closure can be found in those circumstances that highlight the perceived benefits and reduce the perceived costs of closure. Those contextual factors are for instance time pressure, environmental noise, mental fatigue, boredom or dullness of a cognitive task. By contrast, the need to avoid closure may be instilled in those conditions that stress the costs of closure and the benefits of a lack of closure (i.e. accountability, fear of invalidity, evaluation apprehension).

Moreover, need for closure can also represent a stable individual disposition. In fact, some individuals may display a systematic proclivity to value closure positively, while, on the other hand, some others may be predisposed to avoid closure and prefer openness (Webster & Kruglanski, 1994). Consequences of need for closure are to be found in the urgency and permanence tendencies. The urgency tendency refers to the inclination to quickly seize on closure, relying on early cues and first answers despite their validity. The permanence tendency reflects the propensity to freeze on existing knowledge in order to preserve past and future cognition.

Need for closure has both cognitive and social consequences, as the urgency and the permanency tendencies affect a wide range of psychosocial phenomena mediated by information processing at individual, interpersonal and group level (for a review see Kruglanski, 1996; Kruglanski & Webster, 1996; Webster & Kruglanski, 1998).

Overview of the Studies and Hypotheses.

In social group context, permanence tendency assumed to be induced by a heightened need for closure implies that groups experiencing such a need would be unlikely to change and so would remain relatively stable across shifting circumstances. This hypothesis was tested in two studies using *generations design* (Jacobs & Campbell, 1961; Kenny, Hallmark, Sullivan, Kashy, 1993) to investigate need for closure effects on stability of individual behavior, conformity to the group norms, and persistence of norms across generations.

Stability of group norms across shifts in membership relatively sparse research attention from social psychologists (Kenny et al., 1993; Nielsen & Miller, 1997). The few extant studies of this phenomenon demonstrate that an arbitrary norm may exhibit some stability (Jacobs & Campbell, 1961), inversely related to the norm's degree of arbitrariness, that is, deviation from members' own inclinations (MacNeil & Sherif, 1981), and effortfulness of maintenance (Weick & Gilfillan, 1971). Those findings imply that member motivations (e.g., follow own inclinations or the desire to save effort) may constitute an important underlying factor of

normative stability. It is presently assumed that a major motivation for normative stability is need for closure (NFC). Specifically, the permanence tendency mentioned earlier may contribute to members' tendency to resist normative change and uphold the group's existing norms across generations.

Two experiments were designed and conducted to test the hypothesis that epistemic motivation towards closure induces the stability of the group's norm and affects both the stability and the conformity of group members. In the first study, need for closure was situationally manipulated through environmental noise, whereas in the second study need for closure was manipulated as individual difference; groups composed by individuals low dispositional NFC were compared to groups formed by individuals with high dispositional NFC.

Study 1. Noise vs. no-noise condition

Participants

Participants were 160 females students of psychology at the University of Rome "La Sapienza", whose average age was 21.3 (s.d.=2.4). They were randomly assigned into 10 laboratory micro-cultures. They performed the task in the noise condition (Kruglanski & Webster , 1991; Kruglanski et al., 1993), and 10 in the control condition (no-noise).

Procedure

In a mass session, one up to two months before the experiment, participants completed a small booklet containing various scales. At the end of this booklet, participants were asked to volunteer for a study concerning a group simulation. Those agreeing were subsequently contacted by phone and invited to appear at the laboratory of the Department of Social and Developmental Psychology at the University of Rome**.**

After arriving, all participants (including two confederates) were greeted by two experimenters and accompanied to a waiting room close to the Social Psychology Laboratory. One experimenter then explained that they would be called in a random order. In the experimental condition, groups performed the task under environmental noise simulated with a broken air conditioning fan. The experimenter, offering his apologies for the noise, said he contacted the technical service in order to repair the malfunction, but that the technician would repair air-conditioning only within a week. Then he asked participants whether they wanted to schedule appointment for next week or complete the task in any case. All participants chose to do the experiment anyway. The ambient noise was indeed caused by a small speaker hidden in the intake of the air conditioning; this speaker, connected with the computer in the control room, run a file of a looped sampled registration of the rotor of a broken fan. Next, the first three participants (the first two being confederates) were invited to follow the first experimenter to the lab, while the second experimenter waited with other participants in order to control that they would not actively socialize with each other by offering magazines and newspapers.

Three-person groups participated in a *generational* procedure in which at the end of each cycle an old member was dropped from the group and a new one was added. The group task was a modified version of Sullivan (1991). Eight naïve subjects and two confederates were assembled to form a fictitious company called Caesar Soft Inc. They were informed that the company just issued a new product, a computerized software for the language recognition. The participant's task was to meet in a group and decide two different issues: mean age and monthly income of the target user of the software. These two tasks was chosen due to their different perceived difficulty. The first group was then formed including the two confederates and one naïve subject. Each member of the group, in turn, stated a numeric opinion. For statistical reason related to the method of data-analysis (Kenny et al., 1993), no discussion between members took place. After all members stated their opinion, the experimenter informed the group of their decision consisting of the arithmetic mean of the different members' estimates. The two confederates stated opinions toward the low end of the response scale for each issue, namely 20 and 21 for the age and for the monthly income, 880 and 980 euros.

Following the group decision , one confederate left the room, and was replaced by a new naïve subject. The group decision process was repeated and the second confederate was replaced by naïve subject. At the end of each cycle, when the participant back to the waiting room, the second experimenter gave the post-experiment questionnaire with manipulation checks.

Six subsequent generational-cycles were run with naïve subjects exclusively. Only data from those trials were analyzed. Each set of eight generations (Two with confederates, and six without) are referred as a culture (see table 1).

Table 1 Note: underlined subjects were confederates; A, B and C indicate the answer rank order

	Subjects									
	1	*2*	3	4	5	6	7	8	9	10
1	A	B	C							
2		A	B	C						
3			A	B	C					
4				A	B	C				
5					A	B	C			
6						A	B	C		
7							A	B	C	
8								A	B	C

(Generations — row labels at left)

In the experimental condition, groups performed the task under environmental noise, whereas in the control condition

they completed the same task in a silent environment. Participants were randomly assigned to one of the two experimental conditions.

Measures

The main dependent measure was the opinion expressed by subjects on each cycle. Moreover, a post experimental questionnaire was administered including measures of manipulation checks and some measure to control for undesired effects of noise, such as participants' arousal and mood (see Kruglanski & Webster, 1991).

Data Analysis

The basic datum was each subject's numeric opinion concerning the two decision issues (target mean age and mean income). The data analysis used GENERAL software (GENERations anALysis, Kenny, 1991), aimed to estimates both stability and conformity coefficients from data collected with the generation design (for a detailed description, see Kenny et al., 1993). In the GENERAL model, the stability parameter denote to the old member's behavior determined by her past behavior, thus the extent to winch a person's behavior (numerical opinion) is determined by her past behavior (in the previous cycles in which she had participated). Because past behavior may have been conforming only a portion of stability is truly conforming. Additionally, a person's behavior is influenced by other members of the actual or past generations. For newcomer, the conformity parameter refers to influence exerted by the other two old members of the current generation. For the two old members, conformity could have different paths: In fact, people could be influenced by other members of the group of which they are members, or they can be influenced by the opinions expressed in the previous generation. In the present study, we set the conformity coefficient so that the oldest member is influenced only by the answer of the newcomer of the previous generation, while the "younger" old member, is influenced by the answer of the oldest member in the current generation.

The method of coefficients estimation presume that responses are in a fixed sequence and therefore is clear the direction of the influence (i.e. older member influence new members) For this reason, no discussion was permitted during each generation, otherwise, participants could influence each other and regression model would be become much more complicated due to this mutual influence.

The influence coefficient is the regression coefficient that measures the extent to which a person is conformist (i.e. influenced by other) or stable (i.e. influenced by the person's own past).

Results

Stability and Conformity Table 2 shows the influence coefficients for the present study. For the age variable, stability coefficient are high and statistically significant both in noise and no-noise conditions. That means that people does not change their response from a generation to another and remain both freezed on their opinion. Evident differences are present in conformity behavior of newcomers: In no noise condition, conformity coefficient is low and not significant (.41), whereas in the noise condition they increase and become significant (.70).

For Income, perceived to be the more difficult task by participants, the stability coefficients are fairly similar for both old members. Looking at level of conformity, results shows higher coefficients, confirming prior results of Kenny and colleagues (1993). No appreciable differential effect was found for old members' conformity, while for the newcomers, as the previous variable, the noise (vs. no noise) condition presents higher coefficients (.60 vs. .88, both significant). Again, for income variable, the newcomers appear to adopt the group's norm in the noise condition than in the no-noise condition.

Table 2

Variable	Answer rank	Control Condition	
		Conformity	Stability
Age	A	-.09	.96*
	B	.09	.79*
	C newcomer	.41	-
Income	A	.11	1*
	B	-.02	.93*
	C newcomer	.60*	-

Variable	Answer rank	Noise condition	
		Conformity	Stability
Age	A	.01	.95*
	B	.15	.74*
	C newcomer	.70*	-
Income	A	.22	.70*
	B	-.01	.93*
	C newcomer	.88*	-

Study 2 High NCC vs. Low NCC condition

This study is a replication of study 1 with NCC operationalized as an individual difference.

Participants

Participants were 160 females students of psychology at the University of Rome "La Sapienza", whose average age was

22.8 (s.d.=2.8). They were randomly assigned into 10 laboratory micro-cultures.

Procedure and Task

In two mass testing one to two months prior to the experimental session, participants completed the Italian version of Need for closure scale (Webster & Kruglanski, 1994) and a consent form to the experiment participation. Following prior research (Mannetti, Pierro, Kruglanski, Taris, Bezinovic, 2002), in the present study we used a reduced version of the NFC scale without decisiveness items.

Afterwards, according to the scores on the scale subjects were divided into three groups: low, middle and high. Subjects with low NCC score and high NCC score were contacted by phone and asked to volunteer for a study concerning a group simulation. Those agreeing were invited to appear at the laboratory of the Department of Social and Developmental Psychology at the University of Rome. The procedure for the study was identical to the procedure of the first study with no noise condition.

Measures

Need for Closure. The Italian version of the need for closure scale was administered (Pierro, Mannetti, Converso, Garsia, Miglietta, Ravenna, Rubini, 1995; Webster & Kruglanski, 1994). This scale is composed by 35 items aimed to measure four different aspect of the need for closure: preference for order and structure, intolerance of ambiguity, need for predictability, close-mindedness (Webster & Kruglanski, 1994). Participants state their agreement or disagreement to the items on seven points ranging from completely disagree (1) to completely agree (7). The overall reliability was satisfactory, the Cronbach α being .86. An overall score was computed and used to divided participants into high and low groups in need for closure.

Results

Stability and Conformity. Table 3 shows results that confirms coefficients reported in the previous study. Looking first at "age" variable, stability coefficients are both high and significant in the two NCC conditions. Resembling the study 1, the conformity coefficient are different: in the Low NCC condition, conformity coefficient is .45 while in High NCC is .71. Thus, results show that subjects high in the NCC scale are more conforming to group's norm then low NCC. Also Income variable shows the same pattern, increasing only conformity behavior from Low to High NCC (.64 vs. .82).

Table 3

Variable	Answer rank	Low NCC	
		Conformity	Stability
Age	A	.06	.85*
	B	11	.91*
	C newcomer	.45*	-
Income	A	.07	.88*
	B	-.07	.97*
	C newcomer	.65*	-

Variable	Answer rank	High NCC	
		Conformity	Stability
Age	A	.04	.77*
	B	-.11	1*
	C newcomer	.71*	-
Income	A	-.07	1*
	B	.07	.91*
	C newcomer	.82*	-

Conclusions

Findings from both studies were conceptually consistent with our theoretical derivation concerning the positive relation between need for closure and resistance to change: Groups in NFC conditions (both with high score in NFC Scale or under environmental noise) maintain arbitrary norms stable through social contexts changes, showing that individuals with a high need for closure find change aversive and resist to group's internal change attempts, potentially originated by fresh opinions and ideas contributed by newcomers.

These results confirm both the theory and empirical studies on Need for Cognitive Closure: for example, Kruglanski e Webster, (1991), Doherty (1998), found that need for cognitive closure increase rejection of deviant opinions, desire to avoid ambiguity in order to find a stable and shared reality within group (cfr. Harding e Higgins, 1996). The present studies show that Need For Cognitive Closure induce people to control their own behavior in order to reduce opinion divergence, following standards suggested by old members of the group.

Trying to generalize results to a more natural context, results propose that in families with members with high need for closure, children will be more prone to assimilate traditions, passing family cultures from a generation to another with slight changes. At the same time, in organizational workgroups that work with high time pressure or noise conditions, newcomers will be more watchful to organizational norms expressed by full members and will freeze upon those norms.

Some methodological limitations should be taken into account: the generational paradigm have the advantage to

offer a rigorous experimental procedure that allow to control norms' transmission, but the absence of interaction delete an important factor in group interaction, that is social control through feedback.

Despite of this limitation, future research could use simpler research designs, such as a correlational study, in order to verify, for example, the relation between dispositional need for cognitive closure and norms' acceptance from old members or previous generation

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