Published in
M. Argyle & M. Brenner (Eds.), European summer school. Oxford: Roneotyped, 59-62, 1976
which should be used for any reference to this work

Introducing a sociological variable to the analysis of results of two experiments in social psychology.

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The two experiments which will be referred to in this article were conducted within the framework of a more general project studying the effect of social interaction on the development of cognitive operations (Doise, Mugny, Perret-Clermont, 1975; Perret-Clermont, Doise, Mugny, 1976; Doise, Mugny, Perret-Clermont, 1976; Perret-Clermont, 1976). They would seem to corroborate our general hypothesis that intelligence (as Piaget defines it) is primarily constructed in situations requiring inter-individual coordination.

Current literature in psychology, social psychology and education on topics such as compensatory education or social class differences and school achievement or test performances will convince the reader that there is sufficient evidence to suggest that social factors can affect intellectual development, but that little is known of the mechanism involved in this process. The understanding of these mechanisms is the subject of this paper.

The experimental paradigm was as follows: the subjects each underwent an individual pre-test (on the conservation of liquids in the first experiment, on the conservation of number in the second). According to their cognitive level at this pre-test, the children were then classified as either "non-conservers"(NC), "intermediate" (I) or "conservers" (C). For the experiment on the conservation of numbers only the NC who could count were retained for the experimental situation where they and a peer(s) were to perform a common task. In the first experiment, this task consisted of sharing out syrup; in the second, of sharing out sweets. The experimental conditions varied according to the peer(s) with whom the "non-conservers" interacted during this part of the experiment. Finally, the subjects each did an individual post-test, similar to the pre-test.

Our hypothesis was that subjects who had interacted with a partner defending a conflicting point of view would show significantly more cognitive progress at the post test. This hypothesis would seem to be confirmed at a significant level of probability in both experiments (exact probability : $p = .021$ in Experiment I; $p = .034$ in Experiment II). The data are presented in Tables I and II.

Table I : Progress of the non-conservers at the post-test of Experiment I (conservation of liquids).

	Progress NC becomes I or C	No Progress NC remains NC	Total
Conflicting condition: interaction with one or two partners defending a conflicting point of view (1 NC + 2C, or 2NC + 1C)	8	8	16
Control conditions (no interaction, or interaction with partners defending similar points of view : 3 NC)	2	15	17
TOTAL	10	23	

p = .021

Table II: Progress of the non-conservers at the post-test of Experiment II (conservation of numbers).

	Progress NC becomes I or C	No Progress NC remains NC	Total
Conflicting condition: interaction with a partner defending a conflicting point of view (1 NC = 1 C or 1 NC + 1 I)	8	14	22
Control condition: partner defending a similar point of view (1 NC + 1 NC)	0	10	10

p = .034

A reanalysis of these data (which was not foreseen when the experiments were originally planned) according to the social origin of the child was carried out once the experimental procedure was completed. It appears that in both experiments children of Group A (workers and employees) benefitting most from the conflicting interaction condition; the children of Group B (craftsmen, shopkeepers and technicians) did to a lesser extent, and those whose parents are on the highest professional level did not at all. These results are presented in Tables III and IV. These tables also indicate the proportions of non-conservers found at the pre-test, by social group, at a given age and school level.

Table III : Proportion of non-conservers at the pre-test and their ratio of progress at the post-test, according to their social class, in the conflicting interaction condition of Experiment I.

Social group according to parental occupation	% of NC at the pre-test	Conflicting interaction condition			(% of NC at the post-test)
		Progress at post-test	No progress at post-test	Rate of progress	
Group A workers, employees, etc.	51%	5	2	(71.4%)	(14.6%)
Group B craftsmen, shopkeepers, technicians, etc.	44%	3	3	(50%)	(22%)
Group C liberal professions, directors, etc.	25%	0	3	(0)	(25%)

NB : the brackets are there to remind the reader that the percentages are computed with small numbers of subjects.

Table IV : Proportion of non-conservers at the pre-test and their ratio of progress at the post-test, according to their social class, in the conflicting interaction condition of Experiment II.

Social group according to parental occupation	% of NC at the pre-test (of the children who can count	Conflicting interaction condition			% of NC at the post-test (of the children who can count))
		Progress at post-test	No progress at post-test	(Rate of progress)	
Group A	40%	3	5	(37.5%)	(25%)
Group B	41%	5	7	(41.6%)	(23.9%)
Group C	23.8%	0	2	(0)	(23.8%)

We have only a few subjects in social group C. But the data obtained for social groups A and B is interesting. These results tend to suggest that the conflicting social interaction conditions could lead to the disappearance of the social group differences originally found at the pre-test. This seems worth noting since such "compensatory effects" have rarely been found. We put forward the hypothesis that they appear here because:

(1) the measurements are made according to a stage theory which can precisely account for any developmental progress and new mastering of given concepts (as opposed to broadly defined "aptitudes" or "skills");

(2) the experimental situation was designed for children who were known to have the necessary prerequisites for a developmental change on the notion in question ;

(3) fundamental developmental processes were elicited by the experimental conditions based on conflicting social interactions.

Further evidence is required to confirm these interpretations. But the present data encourages us to introduce a sociological perspective in the analysis of the results of social psychological experiments.

References

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