

The self-schema and addictive behaviors: Studies of alcoholic patients

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This study deals with the sociocognitive organization of the self-schema in alcoholic patients. It was aimed at understanding how the self-schema takes shape within the framework of social judgments known to be determinants of personality. Alcoholic subjects were interviewed twice, once during their first consultation for treatment and then again four months later after completion of treatment. Our approach was derived directly from the methodology used by Markus (1977) and Clemmey & Nicassio (1997) in their studies on the self-schema. The subjects had to perform three tasks that required manipulating personality traits with positive and negative connotations (a self-description task in which decision time was measured, an autobiographical task, and a recall task). The results of the first interview showed that 1. in their self-descriptions, alcoholics took more time than control subjects both to accept positive traits and to reject negative ones; 2. unlike control subjects, alcoholics considered more negative traits to be self-descriptive than positive traits, and 3. unlike controls, alcoholics recalled more negative traits than positive ones. By the second interview, the results for the alcoholic subjects on the autobiographical and recall tasks had changed: 1. they now described themselves more positively and less negatively than on the first meeting; 2. they recalled a marginally greater number of positive traits and a significantly smaller number of negative traits, and 3. the differences between the alcoholics and controls indicated an improvement in the alcoholics' self-perceptions.

Key words: Self-schema, alcoholic patients, addiction, adaptation

This study deals with the sociocognitive organization of the self-schema in alcoholic patients. It was aimed at grasping how the self-schema takes shape within the framework of social judgments known to be determinants of personality. The specific contribution of this study is that it takes into account and provides evidence of a relationship between the self-perceptions of alcoholic patients and the social stigmatization to which they are subjected (Crocker & Major, 1989). Persons who are perceived negatively by society, especially those who belong to social

minorities, may be influenced by these perceptions and thereby generate negative perceptions of themselves. Clark & Clark's (1947) study was among the first to demonstrate degrading self-images in Black children, suggesting that people's self-images depend in part on how they perceive what others think of them (Drozd & Dalenbergh, 1994; Hull & Bond, 1986). In other words, the value judgments individuals make about themselves are in effect partially based on the judgments others direct at them (Crocker, Major & Steele, 1998).

The social and occupational consequences of addictions also play a part in identity building by modifying and structuring the addicted individual's self-schema. According to Markus (1977), as people accumulate personal experiences of a given type (addictive behaviors, for example), their self-schema becomes more and more resistant to inconsistent or contradictory information. Persons suffering from a chronic disease, for example, appear to build their self-schema in a different way from healthy individuals (Clemmey & Nicassio, 1997).

Developed under Markus's (1977) impetus, studies on the self-schema have considered schema construction to be a kind of cognitive-generalization process resulting from past experiences that organize and guide self-related information processing (Higgins & King, 1981; Bargh, 1982; Gaertner & McLaughlin, 1983; Bargh & Pratto, 1986; Bylsma, Tomaka, Luhtanen, Crocker & Major, 1992). Everything an individual does in an attempt to organize or explain his or her own behavior in a given domain thus contributes to the formation of cognitive structures about the self, which Markus called *self-schemata* (Markus, Crane, Bernstein & Siladi, 1982; Markus & Nurius, 1986; Stein, Roeser & Markus, 1998). The self-schema can thus be conceived as a structure that enables generalizations and theorizations about the self based on the categorization of one's own recurring behaviors and those of others. It gives each person a clearly defined idea of the type of person he or she is in a particular domain. For a given facet or aspect of life, subjects may possess a self-schema of a certain type (masculinity, academic achievement, successful career, independence) or of the opposite type (femininity, academic defeat, career failure, dependence), or they may have no specific self-schema at all in that domain (Tarquinio & Somat, in press). Self-schemas lay the grounds for the perception and interpretation of one's own behavior and, as such, allow individuals to make sense of their social experiences (Markus & Smith, 1981).

Based on a series of experiments, Markus and her collaborators (1977; Markus & Smith, 1981; Markus, Smith & Moreland, 1985) defined the essential properties and functions of a self-schemas as follows: 1. evaluating new information; 2. processing information about the self (judgments and decision making) with greater ease or certainty; 3. retrieving behavioral proofs; 4. predicting future behavior on the dimension in question, and 5. resisting information that goes against the dominant schema.

General description and hypotheses

The early self-schema research was aimed mainly at understanding cognitive functioning. In this framework, the social dimensions of the self-schema were rarely treated

as the outcome of social evaluations and perceptions (Monteil, 1991; Martinot, 1993). The present study on alcoholic patients sees the self-schema of these individuals as being determined instead by psychosocial variables rooted in the stigmatization to which they are subject. In this view, the personality traits of alcoholics are expressions of their self-schema and are determined by the social context in which they live, not just by the characteristics of the cognitive processes at play. The self-schema also functions cognitively as a dynamic process that integrates psychosocial factors as essential components of self-expression. In this light, our study addresses the question of the self-schema of alcoholics from a different angle to that of existing approaches to the issue, most of which only take cognitive dimensions into account in self-schema construction. Personality trait judgments could indeed be interpreted not merely as expressions of cognitive processes, but also as adaptive means for alcoholics, insofar as the self-schema is the expression of both the cognitive and the evaluative adaptation of the self to the social setting in which these individuals live.

Thus, the general postulate underlying this study is that self-related cognitions are products of the person's socio-cultural environment and are formed and modified through interpersonal interaction. In this view, environmental transactions are internalized in the form of beliefs and personal goals.

Because of the particular category to which alcoholic patients belong, they are subjected to stigmatizing social evaluations. Stigmatization here means ascribing negative attributes to certain persons which discredit them and accord them a negative self-image. The term stigma is a very old one, formerly used to refer to a mark made on the body, generally by a hot iron, for the purposes of exposing what was "uncustomary and detestable" in the moral character of the branded person (Goffman, 1975). It was later taken up again, mostly in psychosociology, to describe the kind of "branding" or labelling engendered by any kind of social disqualification (Paugam, 1991). Addictive behaviors are a form of social disqualification that prevents the addicted individual's full acceptance in society. One of the consequences for the addict is withdrawal, which necessarily leads to awareness of their socially-marked status. Such marking tends to reinforce negative self-perceptions and self-images which, in time, may lead to the emergence of a highly discredited and degraded "self", especially if the heavy drinker recognizes the need for therapeutic treatment. The above considerations formed the basis for the following hypotheses in the present study: 1. Alcoholic subjects will describe themselves in more negative terms, whereas control subjects will describe themselves in more positive terms. 2. Alcoholics will take more time than controls to accept positive traits

as self-descriptive, and they will take more time than controls to reject negative traits. 3. The self-description scores obtained by alcoholic subjects on negative traits will be higher than the control subjects' scores, whereas the positive-trait scores will be higher for controls than for alcoholics. 4. Alcoholic subjects will recall more negative traits than positive traits, unlike control subjects, who should recall more positive traits than negative ones.

It was also assumed that these same alcoholic subjects would be better adjusted several months later, after treatment for alcoholism. "Drying out" implies changing one's social role. Due to social pressure, ex-alcoholics undergo a behavioral norm-conforming process that will make them more acceptable in the eyes of society. The therapeutic measures from which they have benefitted should be upgrading and should help them develop a feeling of belonging to this intermediate group of "cured drinkers". This new social role will have repercussions on the self-structuring process. These considerations led us to advance the following additional hypotheses: 5. The self-description scores obtained by alcoholic subjects on negative traits should be lower after treatment than before. Conversely, their self-description scores on positive traits should be higher after treatment. 6. Alcoholic subjects' recall of negative traits should be poorer after treatment than before, whereas their recall of positive traits should improve.

Subjects

Forty male subjects (20 alcoholics and 20 controls) who were all of French nationality participated in the first phase of the experiment. The experimenter met with the alcoholics during their first consultation for alcoholism at the

Bon Secours Hospital in Metz, France. The eligibility criteria for participation in the experimental group, which was potentially to be composed of 77 subjects, were 1. being an alcoholic for six years, plus or minus two years (this criterion was defined on the basis of the statistical data available at the treatment center); 2. not having eaten yet on the day of the experiment; 3. not making more than five keystroke errors (5.2%), as determined on the basis of the verbalizations of the subjects who repeatedly expressed discontent about making mistakes on the self-description task, and 4. being able to understand the meaning of the terms used during the experimental phase. This very empirical criterion was measured in terms of the number of explanations the subject requested during the self-description task; a cutoff point of five requests was set for exclusion of a subject from the study.

The control subjects were recruited from learning institutions and firms in the Lorraine region of France. They were matched to the experimental group on four criteria: age, gender, education, and marital status. The demographic characteristics of the two groups are presented in Table 1.

Eleven of the alcoholic subjects and fifteen control subjects participated in the second phase of the experiment, which took place in the subject's home four months after the first consultation for treatment. The other nine alcoholic subjects either refused to meet with us or were not available for the second interview. All of the alcoholics who agreed to participate a second time stated that they had not had any alcohol since the first meeting. The demographic characteristics of the subjects in the second phase are also presented in Table 1.

The education variable showed that, as a whole, our subjects were not very educated, a fact that has obvious

Table 1: Demographic characteristics of the different groups in the first and second phases, held four months apart

	First phase		Second phase	
	Alcoholic group (n = 20)	Control group (n = 20)	Alcoholic group (n = 11)	Control group (n = 15)
Age	m ¹ = 41.45 sd = 6.4	m = 40.4 sd = 7.0	m ² = 44.27 sd = 7.5	m = 42.7 sd = 6.0
Marital status	Single: 30% (6 out of 20)	Single: 40% (8 out of 20)	Single: 54.5% (6 out of 11)	Single: 33.3% (5 out of 15)
	Married: 45% (9 out of 20)	Married: 40% (8 out of 20)	Married 36.36% (4 out of 11)	Married: 40% (6 out of 15)
	Living maritally: 25% (5 out of 20)	Living maritally: 20% (4 out of 20)	Living maritally: 9% (1 out of 11)	Living maritally: 26.6% (4 out of 15)
Education	Grade school: 75% (15 out of 20)	Grade school: 80% (16 out of 20)	Grade school: 72.7% (8 out of 11)	Grade school: 86.6% (13 out of 15)
	High school: 15% (3 out of 20)	High school: 10% (2 out of 20)	High school: 27.27% (3 out of 11)	High school: 13.33% (2 out of 15)
	Some college: 10% (2 out of 20)	Some college: 10% (2 out of 20)	Some college: 0%	Some college: 0%

¹ There was no significant age difference between the two groups ($t = 1.43$, $df38$, $p = .16$).

² There was no significant age difference between the two groups ($t = 0.95$, $df24$, $p = .35$).

implications, for example, on reentry to the job market. Consequently, the results of this study remain at least partially confined to this specific population.

Materials and Procedure

All subjects were tested using the same procedure. During the first phase, they had to perform three separate tasks that involved manipulating personality traits with positive and negative connotations. Preparing the experimental materials required four preliminary steps.

1. First we recruited two groups of subjects, each composed of 20 liberal arts students who knew nothing about the study. One group was given 100 cards with positive traits on them and the other group was given 100 cards with negative traits on them. The subjects in both groups had to sort the cards as explained in the following instructions (which were given both orally and in writing): "Among the adjectives written on the cards you have in front of you, indicate which ones best describe an alcoholic person. To do so, sort them into two separate piles. In one pile, put the traits you think describe such a person well, and in the other, put the traits you think do not describe such a person very well."
2. Based on the way the students subjectively sorted the traits, the two kinds of traits were ordered according to how descriptive of alcoholics they were. This was done by assigning 1 point to traits put in the first pile and 0 points to those put in the second pile. This gave a total score between 0 and 20 for each trait. Traits that had scores of at least 13 out of 20 (i.e., 65% of the subjects considered these positive or negative trait to be descriptive of an alcoholic person) were retained, of which 61 were negative traits and 47 positive traits.
3. The 61 negative traits and the 47 positive traits were then given for self-evaluation to a group of 16 alcoholic patients at the Bon Secours Hospital in Metz, who acted as judges. The same subjective sorting task was requested. The positive and negative traits for which the agreement rate was 62% (10 out of 16) were retained; 32 positive traits and 41 negative traits obtained this agreement rate.
4. To balance the number of items on each list to be used in the experiment, we retained all 32 positive traits (co-operative, energetic, healthy, rested, sound, strong, resistant, independent, vigorous, powerful, calm, full of drive, lively, robust, alert, capable, peaceful, sharp, efficient, good-natured, feels good about himself, well-preserved, manly, enthusiastic, in good shape, full of life, sturdy, well-balanced, dynamic, active, high-spirited, genuine) and 32 of the negative traits (ill, exhausted, dependent, invalid, complaining, diminished, passive, in bad shape, frail, anxiety-ridden, incurable,

lifeless, vulnerable, unattractive, hurting, unhappy, pessimistic, depressive, run-down, deathly, fragile, sickly, weak, helpless, in a sorry state, fatigued, worn out, tense, debilitated, desperate, slow).

Sixteen negative filler traits and sixteen positive filler traits were taken from among the least descriptive traits on the initial list. These traits were not included in any of the analyses.

The three tasks the subjects had to perform were as follows:

Self-description task

Subjects were brought individually into a room and told they would have to do a self-descriptive judgment task. For each of the 96 traits presented (32 positive traits, 32 negative traits, and 32 positive and negative fillers), the subjects had to state as rapidly as possible whether the trait seemed characteristic of their own personality. The instructions displayed on the screen of a computer were: "You are going to see a series of words displayed one after the other. You have to say whether or not the word presented on the screen describes you. If you feel that the word describes you, answer yes by pressing on the RED key; if you think the word does not describe you, press the BLUE key to say no." A demonstration of five traits was then proposed by the experimenter and followed by twenty trials the subject did himself. For each trait presented, the answer given and the time taken to respond were recorded. The item presentation order was random.

After this decision-time measurement task, the subjects were given five minutes to take a reasoning test aimed at clearing their working memory and avoiding potential recency and primacy effects during the upcoming autobiographical task.

Autobiographical task

Then the subjects had to describe themselves using the 32 positive and 32 negative experimental traits (the filler items were not used in this task). Each trait was presented with a four-point Likert scale ranging from 1 ("Does not describe me at all") to 4 ("Describes me completely"). In order to limit any potential recency and primacy effects on the next task, the location of the items was counter-balanced on the two lists of traits.

After the autobiographical task, the subjects were asked to work on the reasoning test for another five minutes.

Recall task

For the recall task, the subjects had to use a plain sheet of paper to write down all the words they could remember from the ones presented on the second task. The time allotted for recall was five minutes. The scores were the number of positive words recalled and the number of negative words recalled.

For the second phase of the study, we were not able to include all three tasks. Due to subject unavailability¹, only the autobiographical and recall tasks were repeated. The data from these two tasks only were analyzed.

Independent Variables

Two independent variables were included in this experiment: 1. a between-subject variable, the type of subject (alcoholic vs. control), and 2. a within-subject variable, the type of trait (positive vs. negative).

Dependent Variables

There were four dependent variables: 1. the mean number of positive and negative traits deemed self-descriptive (Task 1), 2. decision time (in ms) taken to accept or reject a trait (Task 1), 3. the mean score obtained for the 32 negative and 32 positive traits on the autobiographical task (Task 2), and 4. the mean number of positive and negative traits recalled (Task 3).

Results

Self-description task

Two types of data were collected on this first task: the mean number and type of trait chosen by the subject as self-descriptive (Table 2) and the decision time taken by the subject to produce the response, i.e., to accept or reject a trait as self-descriptive (Table 3).

The data presented in Table 2 were processed in an analysis of variance with the following experimental design: subject group (alcoholic vs. control) * type of trait (positive vs. negative). Only the accepted-trait category was analyzed (to obtain the mean number of traits rejected, subtract the mean in each case from 32).

Only the type of trait had a main effect ($F(1,38) = 266.0$, $p < .001$), indicating that the subjects described themselves

Table 2: Mean number of positive and negative traits deemed self-descriptive by alcoholic subjects and controls (standard deviation in parentheses)

	Positive traits	Negative traits
Alcoholic subjects (n = 20)	18.25 (5.67)	11.4 (3.89)
Control subjects (n = 20)	28.25 (3.27)	4 (2.49)

using positive traits ($m = 23.25$, $sd = 6.82$) more than negative ones ($m = 7.72$, $sd = 4.96$). The significant interaction effect between the subject group and the type of trait ($F(1,38) = 84.03$, $p < .001$) provided some additional information: when broken down, this interaction showed that alcoholic subjects felt that fewer positive traits were self-descriptive than did controls ($F(1,38) = 46.59$, $p < .001$), whereas they considered more negative traits to be self-descriptive than did controls ($F(1,38) = 58.03$, $p < .001$). We can also see that alcoholic subjects ($F(1,38) = 27.02$, $p < .001$), like controls ($F(1,38) = 338.10$, $p < .001$), described themselves in terms of positive traits more than with negative ones, although the difference between the two trait types was greater for the alcoholic group than for the control group.

Again, for the self-description task, the subjects had to state as quickly as possible whether or not the traits presented on a computer screen were applicable to themselves. Thus, the decision time (in ms) was also recorded during this experimental phase. The data presented in Table 2 were processed in an analysis of variance with subject group (alcoholic vs. Control) * type of trait (positive vs. negative) * response (yes vs. no) as the experimental design.

The results showed first of all that there was a main effect of group ($F(1,38) = 4.56$, $p < .050$): alcoholics took more time as a whole ($m(\log t) = 3.36$, $sd(\log t) = 0.07$) than controls did ($m(\log t) = 3.31$, $sd(\log t) = 0.06$) to accept or reject a trait as self-descriptive. Another significant effect ($F(1,38) = 23.17$, $p < .001$) was that the time taken to answer yes ($m(\log t) = 3.30$, $sd(\log t) = 0.06$) was shorter than to answer no ($m(\log t) = 3.36$, $sd(\log t) = 0.1$). In contrast, there was no main effect of the type of trait ($F(1,38) < 1$, ns), since the time taken to accept or reject positive traits was the same as for accepting or rejecting negative traits. The second-order interaction between the group, the response given, and the type of trait was significant ($F(1,38) = 23.56$, $p < .001$). The breakdown of this interaction showed that alcoholic subjects took more time than control subjects to decide that a positive trait was self-descriptive ($F(1,38) = 11.07$, $p < .002$), whereas for negative traits, it was the alcoholics who took less time than the controls to accept these items ($F(1,38) = 20.70$, $p < .001$). Alcoholic subjects also had a tendency to take

1 It turned out that the self-description task (decision-time measure) was very taxing for the subjects because it required allocating substantial attentional resources and therefore tired them out. For this reason, some subjects refused to do this task again, so we had to eliminate it from the experiment.

Table 3: Mean decision time, after logarithmic transformation, taken by alcoholic and control subjects to accept or reject positive and negative personality traits (standard deviation in parentheses)

	Accept		Reject	
	Positive traits	Negative traits	Positive traits	Negative traits
Alcoholic subjects (n = 20)	3.33 (0.13)	3.28 (0.07)	3.43 (0.14)	3.39 (0.09)
Control subjects (n = 20)	3.21 (0.07)	3.39 (0.07)	3.38 (0.12)	3.25 (0.09)

We decided to use a logarithmic transformation because Levene's test showed, for the between-subject terms, that as a whole, the two groups (alcoholic and control) had equal variances ($F(1,38) < 1$, ns) on the time taken to reject negative traits and positive traits, and to accept positive traits. On the other hand, when it came to accepting positive traits, Levene's test was significant, meaning that the variances were not equal ($F(1,38) = 7.01$, $p < .01$). In order to adjust for the participants' idiosyncrasies (the most common adjustment consists of analyzing the logarithm of the decision time) and equate the variances, we used the logarithmic transformation of the decision time. With these values, the Levene test was nonsignificant ($F(1,38) < 1$, ns) for all terms including the acceptance of positive traits ($F(1,38) = 3.2$, $p < .09$). For the within-subject terms, the Box covariance matrix equality test (extension to covariances), which can be regarded as a normal condition for application of variance homogeneity, did not allow us to reject the hypothesis of within variance/covariance equality ($p < .68$).

more time to accept positive traits as self-descriptive than negative ones ($F(1,38) = 3.47$, $p < .07$), whereas control subjects took less time accepting positive traits than negative ones ($F(1,38) = 36.35$, $p < .001$).

For trait rejection, there was no difference between the two groups on positive traits ($F(1,38) = 1.08$, $p < .30$), but the control subjects were faster than the alcoholics on negative traits ($F(1,38) = 19.74$, $p < .001$). The non-alcoholic subjects were also found to take less time to reject a negative trait than to reject a positive one ($F(1,38) = 13.40$, $p < .001$), whereas alcoholics spent the same amount of time rejecting and accepting a negative trait ($F(1,38) = 1.05$, ns). The breakdown of this interaction showed that alcoholics took more time rejecting than accepting positive traits as self-descriptive ($F(1,19) = 8.98$, $p < .007$). Conversely, they took less time to accept negative traits as self-descriptive than to reject those same traits ($F(1,19) = 13.29$, $p < .002$). For the control subjects, on the other hand, it took less time to accept than reject positive traits as self-descriptive ($F(1,19) = 39.45$, $p < .011$), whereas negative traits took less time to reject than to accept ($F(1,19) = 29.73$, $p < .002$).

Table 4: Mean sums obtained on the self-description task by alcoholic subjects and controls, for negative traits and positive traits (standard deviation in parentheses)

	Positive traits	Negative traits
Alcoholic subjects (n = 20)	100.7 (15.25)	89.2 (20.8)
Control subjects (n = 20)	127.8 (9.03)	64.5 (14.79)

The correlations between the number of positive versus negative traits judged self-descriptive by the alcoholic subjects and controls, and the positive versus negative trait scores on the autobiographical task, were $r = .59$, $p < .000$ and $r = .44$, $p < .001$, respectively.

Autobiographical task

Recall that for the autobiographical task, the subjects had individually to describe themselves using the 64 experimental traits (32 positive and 32 negative) employed in the preceding task. Each trait was accompanied by a 4-point scale on which the subjects had to estimate the degree of self-descriptiveness of that trait. Table 4 gives the sums of the responses for the 32 positive and 32 negative items. The data was processed in an analysis of variance² with the following design: subject group (alcoholic vs. control) * type of trait (positive vs. negative).

The autobiographical task results obtained in the first experimental phase indicated a main effect of the type of trait ($F(1,38) = 87.47$, $p < .001$): subjects more readily described themselves with positive traits ($m = 114.2$, $sd = 18.4$) than with negative ones ($m = 76.8$, $sd = 21.7$). The

Table 5: Mean scores obtained by the eleven alcoholic subjects and the fifteen controls on the second autobiographical task performed four months later, for negative traits and positive traits (standard deviation in parentheses)

	Positive traits	Negative traits
Alcoholic subjects (n = 11)	112.09 (11.1)	70.9 (11.5)
Control subjects (n = 15)	129.66 (13.81)	62.8 (13.25)

2 For the between-subject terms, Levene's test showed that as a whole, the two groups had equal variances on both positive ($F(1,38) < 1$, ns) and negative ($F(1,38) = 1.5$, ns) traits. For the within-subject terms, the Box covariance matrix equality test (extension to covariances), which can be regarded as a normal condition for application of variance homogeneity, did not allow us to reject the hypothesis of within variance/covariance equality ($p < .15$).

interaction between the type-of-trait and subject-group variables ($F(1,38) = 41.95, p < .001$) provided further information by showing after breakdown that 1. alcoholic subjects ($F(1,38) = 5.18, p < .02$), like controls ($F(1,38) = 150.57, p < .001$), used more positive traits than negative ones in their self-descriptions; 2. control subjects described themselves using positive traits more than did alcoholics ($F(1,38) = 73.12, p < .001$), and 3. alcoholic subjects described themselves using negative traits more than control subjects did ($F(1,38) = 18.72, p < .001$).

For the second interview, recall that the subjects only performed the autobiographical task and the recall task. The data collected during this phase (eleven alcoholic subjects and fifteen controls) was processed in an analysis of variance with the same experimental design as above³. The second-phase results indicated that the subjects described themselves significantly more often ($F(1,24) = 170.8, p < .001$) using positive traits ($m = 120.87, sd = 15.37$) than negative traits ($m = 66.85, sd = 12.98$).

The breakdown of the interaction ($F(1,24) = 9.65, p < .004$) showed that both the alcoholics ($F(1,24) = 49.02, p < .001$) and the controls ($F(1,24) = 154.7, p < .001$) produced self-descriptions containing more positive traits than negative ones. It also revealed that controls used positive traits ($F(1,24) = 11.91, p < .002$) more than alcoholics, whereas the two groups did not differ in their use of negative traits ($F(1,24) = 2.63, p < .11$).

Comparing the results obtained on the first and second executions of the autobiographical task, we can see that 1. the eleven alcoholic subjects who participated in both experimental phases described themselves in a significantly ($t = 4.91, df10, p < .001$) more positive way on the second test ($m = 112.09, sd = 11.12$) than on the first ($m = 98.9, sd = 12.01$), since they relied more on positive traits; in a complementary fashion, their second autobiographical descriptions were not as negative ($t = 7.73, df10, p < .001$), since they relied less on negative traits ($m = 70.9, sd = 11.5$) than on the first test ($m = 98.09, sd = 22.11$). 2. In contrast, the autobiographical judgments of the fifteen control subjects who participated in both experimental phases were the same after the four-month time lapse. On positive traits, there was no difference for the controls ($t = 0.54, df14, ns$) between the first ($m = 128.06, sd = 9.8$) and second ($m = 129.6, sd = 13.9$) phases. Similarly for negative traits, no difference was found ($t = 0.34, df14, ns$).

3 For the between-subject terms, Levene's test showed that the two groups had equal variances on both positive ($F(1,24) = 1.32, ns$) and negative ($F(1,24) < 1, ns$) traits. For the within-subject terms, the Box covariance matrix equality test (extension to covariances), which can be regarded as a normal condition for application of variance homogeneity, did not allow us to reject the hypothesis of within variance/covariance equality ($p < .75$).

between the two phases ($m = 63.86, sd = 14.19$ and $m = 62.8, sd = 13.2$, respectively).

Recall task

Again, the recall task required the subjects to recall as many traits as they could from the list used during the autobiographical task (Task 2). The data were input into an analysis of variance⁴ with the same experimental design as above.

The analysis of the first recall test yielded a significant interaction between the type-of-trait and subject-group variables ($F(1,38) = 17.13, p < .001$). Broken down, this interaction showed that while the alcoholic subjects ($F(1,38) = 3.55, p < .07$) recalled as many negative traits as positive traits, the controls performed better on the positive traits than on the negative ones ($F(1,38) = 15.75, p < .001$). In addition, the control subjects recalled more positive traits than the alcoholics ($F(1,38) = 8.22, p < .01$), who in contrast recalled more negative traits ($F(1,38) = 6.24, p < .02$).

As above for the autobiographical task, the subjects also had to do a second recall task. The data was processed in an analysis of variance⁵ with the same design. The type of trait was the only variable found to have a significant main effect ($F(1,24) = 55.34, p < .001$): recalled positive traits ($m = 3.78, sd = 0.98$) outnumbered recalled negative ones ($m = 1.96, sd = 0.87$).

Table 6: Means obtained on the first recall task by alcoholic and control subjects, for negative traits and positive traits (standard deviation in parentheses)

	Positive traits	Negative traits
Alcoholic subjects (n = 20)	2.5 (2.08)	3.5 (2.39)
Control subjects (n = 20)	4.05 (1.05)	2.05 (0.99)

4 For the between-subject terms, Levene's test showed that as a whole, the two groups had equal variances on both positive traits ($F(1,38) = 2.5, ns$) and negative traits ($F(1,38) < 1, ns$). For the within-subject terms, the Box covariance matrix equality test (extension to covariances), which can be regarded as a normal condition for application of variance homogeneity, did not allow us to reject the hypothesis of within variance/covariance equality ($p < .33$).

5 For the between-subject terms, Levene's test showed that as a whole, the two groups had equal variances, both on positive ($F(1,24) = 1.9, p < .17$) and negative ($F(1,38) = 1.441, p < .24$) traits. For the within-subject terms, the Box covariance matrix equality test (extension to covariances), which can be regarded as a normal condition for application of variance homogeneity, did not allow us to reject the hypothesis of within variance/covariance equality ($p < .28$).

Comparison of the two recall tests indicated that the alcoholics tended to recall ($t = 2.1$, $df10$, $p < .061$) more positive traits in the second phase ($m = 3.63$, $sd = 1.2$, $n = 11$) than in the first ($m = 2.36$, $sd = 1.6$, $n = 11$). Conversely, they recalled significantly fewer ($t = 2.56$, $df10$, $p < .028$) negative traits in the second phase ($m = 1.81$, $sd = 1.07$, $n = 11$) than in the first ($m = 3.90$, $sd = 2.62$, $n = 11$).

For the control subjects, there was no difference between the first ($m = 4$, $sd = 1.1$, $n = 15$) and second ($m = 3.93$, $sd = 0.79$, $n = 15$) phases for positive traits ($t = 0.22$, $df14$, *ns*), nor between the first ($m = 2.1$, $sd = 1.12$, $n = 15$) and second ($m = 2.06$, $sd = 0.70$, $n = 15$) phases for negative traits ($t = 0.20$, $df14$, *ns*).

Discussion

On the whole, the results of the present experiment validate our hypotheses regarding the importance and the role of negative traits in determining the self-schema of alcoholic subjects. Indeed, while both the alcoholic and control subjects used more positive traits than negative ones in their self-descriptions, the alcoholics took more time than the controls to decide that a positive trait was self-descriptive, just as they took more time than the controls to decide that a negative trait was not. This difference in decision-making time can be explained by the fact that alcoholics undergo more negative social reinforcement than non-alcoholics. Recurring negative reinforcements appear to act as recall cues that favor the retrieval of items that fit with the way a subject's self-schema is organized. These results confirm the properties of the self-schema noted in earlier studies (Markus, 1977; Martinot, 1993). But more specifically, they suggest that during their life as alcoholics, these individuals internalize a set of norms and values that determine their self-knowledge and their self-image.

At the psychosocial level, the organization of the self-schema can be considered to result from a *looking-glass* effect, long known to have an important impact on identity building (Cooley, 1902; Mead, 1934; Shrauger & Schoeneman, 1979). The way the self-schema of alcoholics is organized is thus dependent upon the social interaction framework in which it takes shape and the image that this "social mirror" sends back to the subject. As such, identity building will take place through a dual process that focuses on the evaluations made by others and on the adaptation strategies used to make this image operational. Many studies have shown that the most stigmatized members of social groups tend to pay more attention to the social judgments and stereotypes applied to them (Rosenberg, 1979). The impact is even greater if the judgments are made by persons with whom there is an affective tie

(a spouse or one's children) or social bodies that "count" (superiors at work, doctors, the media, etc.). This facet of the self-schema of alcoholics is also a key characteristic of their social adjustment, insofar as others' judgments may also be a source of stimulation that provides the incentive to seek treatment. Remember that at the time of the first consultation, the alcoholic subjects in this study had all made the decision to stop drinking. For the first time, they were looking into the possibility of finding a long-lasting solution to their problem. The results for the alcoholic subjects at the second interview largely validated our hypotheses on this point (keeping in mind the potential bias created by the loss of subjects between the two experimental phases and the reduction to only two tasks in the second phase). Nevertheless, the second autobiographical score obtained by the alcoholic subjects on the negative traits was lower than their first score, and their positive trait score was higher; note also that although the alcoholic subjects still had lower scores than the controls for self-judgments on positive traits, they did not differ from the controls in their self-evaluations with negative traits. On the recall task, the alcoholics recalled marginally more positive traits and significantly fewer negative traits in the second phase than in the first. And the lack of an interaction effect on the second recall test suggests that the alcoholics and controls were now performing in basically the same way.

It would seem that therapeutic treatment, consultations with physicians, and the sharing of experiences and emotions with other alcoholics gradually changes the "self" and teaches alcoholics to cast their life in a new mould. Of course, the end of alcohol consumption is not synonymous with returning to one's former state when drinking was not a problem. But it is an entry point into a reformed way of living that is based on new identity-building dynamics. At this point, the alcoholic is in effect confronted with the choice between staying caught up in the gears, or putting a stop to the process. The self-schema constitutes an essential factor in adaptation to the new outlook. As a structured and differentiated system, it both falls in line with the past (the subject's roots and niches in society) and frames current behaviors. It is not just a simple cognitive organization, a filter for social reality, a malleable structure that can be fashioned according to how the subject fits into society (Monteil, 1991). It is also, and especially, a dynamic configuration in which the conditions for adaptation are in play whenever the subject has to cope with situations that elicit self-doubt and personal questioning. The self-schema can thus become a means for reconstructing identity through the social interactions that form the link between what is expected and valued by the social system (normative and utilitarian conformity) and the capacities of each individual.

Conclusion

The results obtained in this study showed that the self-schema of our alcoholic patients was composed of a significant number of negative traits that showed up in their performance on the self-descriptive and autobiographical tasks. These traits were interpreted here as being determined by the negative social judgments to which alcoholic patients are subjected. The results largely confirmed our hypotheses, even if some caution is in order since only 20 of the 77 alcoholics initially interviewed completed the study. Replication with other alcoholics is therefore necessary, and more generally, with other categories of subjects facing difficult or trying life experiences (cancer, AIDS, assault, etc.).

Finally, this study opens some new doors for investigation by highlighting the dynamic nature of the self-schema. The self-schema can hereafter be understood as an adaptive process, not a mere cognitive structure. From this perspective, new approaches can be implemented to better determine how the self-schema is affected by various life events (particularly ones involving self-questioning).

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