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# DEGREE OF INVOLVEMENT IN AN ACCIDENT AND CAUSAL ATTRIBUTION

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ABSTRACT

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An experiment was conducted to examine causal attributions for accidents by accident victims and accident witnesses. It emerges that accident witnesses attribute first to the victim, whatever their severity; while accident victims attribute to themselves only mild accidents and attribute a more important causal role to bad luck than witnesses do. This result is compared with the divergences observed by Jones and Nisbett (1971) between the actor and the observer. In addition, involvement in an accident appears to be a defensive attribution factor.

## INTRODUCTION

Considering the importance of previous research on occupational accidents, it is surprising that little of this research concerned the workers themselves in so far as they have their own causal explanation of the accidents of which they (almost daily) are witnesses or victims. According to Heider (1958), insufficient attention has been given to the naive explanation of accidents by the layman. However, as Haddon et al. (1964) mentioned, any witness of an accident seems to have his own theory of its cause and its prevention (p. 6).

Walster's (1966, 1967) and subsequent studies on attribution of responsibility for accidents (Shaver, 1970a, b; McKilip and Posavac, 1972; Chaikin and Darley, 1973; etc.), though not having been able clearly to demonstrate whether attribution of responsibility to the victim increases or decreases with the severity of the accident, show to a certain extent, how attribution theory could contribute to the elucidation of the genesis and the causes of

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accidents. Yet, we must regret that these studies were mainly limited to the laboratory and the populations not sufficiently diversified. Indeed, the subjects of all these experiments are students, and particularly psychology students, for whom the accidents described often have nothing to do with their daily life. Personal involvement is thus relatively low. Furthermore, as Bulman and Wortman (1977) pointed out, in these experiments, the victims are only rarely asked to attribute their misfortune to themselves. If we consider that the relevance hypothesis (Shaver, 1970b)* is fundamental in the determination of attributions, we can raise the subjects' motivation with regard to these experiments. In other words, had they really succeeded in making these experiments relevant and of interest to the subjects?

## HYPOTHESIS

This research concerns workers themselves and tries to find out if we attribute the causes of an accident in which we have been a victim in the same way as we do the causes of an accident we have only witnessed.

Indeed, according to Jones and Nisbett (1971), in certain crucial ways, people tend to explain their own behavior by external or situational forces and that of other people by internal causes or by stable-personal characteristics. This result and that of Eisen (1979), while emphasizing the divergences between the views of the actor and the observer with respect to the causal explanation of an event, lead us to think that victims of occupational accidents (sometimes at the origin of the accident which happened to them) would tend to attribute it primarily to external causes (shortcomings of material, bad luck, false manoeuvre of others, etc.), while witnesses would attribute it primarily to a "fault" or to characteristics of the victim (internal attribution).

## METHOD

The subjects (employees of the French telecommunication services) were asked to relate an accident they had been a victim of or a witness to and to specify if they were speaking as victim or witness. They were then asked to attribute the causes of the accident they had just related to a set of five proposed factors in percentages (from 0% to 100% in 10% intervals). The total percentage attributed to the five factors for a given accident must be equal to 100. The proposed factors were:

*Shaver distinguishes two types of relevance: *personal relevance* which refers to perceived correspondence in personal characteristics between the observer and the stimulus person described in the accident and, *situational relevance* which refers to perceived similarity in the physical circumstances of the stimulus person and the observer. Situational relevance was seen as being a necessary condition for the arousal of defensive attributions (see also Shaw and McMartin, 1977a).

- a fault on your part or the victim's
- a fault on the part of management (foreman, chief of works site, works foreman, etc.)
- bad luck
- a material shortcoming
- a fault of a workman's mate or of another person.

In total, 150 subjects related an accident, 99 of them as victims and 51 as witnesses.

For statistical analysis, we separated the subjects who attributed 0% (i.e., no causal role) to a given factor and those who attributed at least 10% (thus some causal role)*. The chi square ($\chi^2$) test was then applied to the data so grouped. The mean percentage attributed to each factor had also been calculated:

$$m = \frac{N_{xi}}{N}$$

$xi$ are the individual percentages and $N$ the number of subjects considered.

RESULTS

*1. Comparative analysis of victims' and witnesses' attributions*

By analysing separately the attributions of the victims and those of the witnesses, it has actually been observed that witnesses attribute the accident primarily to the victim (38.2%), followed by material shortcomings (28.2%). They scarcely attribute it to a fault of management (11.8%) or to a fault of another person (9.4%) — who, moreover, could be themselves — or to bad luck (10.0%).

Rather paradoxically, it has been noted that the victims also attribute the major fault to themselves (31.2%) though to a lesser extent than the witnesses do. Next, they impute the accidents to material shortcomings (23.3%), next to bad luck (19.3%), to another person (16.0%) and only lastly to management (9.2%).

When comparing the attributions of victims with those of witnesses, it can be noted that victims attribute more to bad luck than witnesses do ($p < 0.02$)** and, on average, tend more to attribute to "another person" (16.0% against 9.4%); but this last difference is not statistically significant. On the other hand, the witnesses tend to attribute more to the victim rather than the victims do ($p < 0.06$) and also attribute more to management than they do ($p < 0.04$).

*Such a separation was necessary and is justified by the high numbers corresponding to 0% and the high dispersions of the numbers corresponding to other percentages of attributions.

**$p < 0.02$ etc represent the levels of significance of the $\chi^2$ test used to compare attributions of witnesses and victims.

Figure 1 and the above remarks show differences between the attributions of the accident victims and those of the accident witnesses. One may wonder whether these differences are not modulated by the variable "hierarchical position". For instance, do the victims who are members of the managerial team attribute their accidents more to themselves than the victims who are employees do? In the same way, do the witnesses of the managerial staff incriminate the victim more than the witnesses who are employees do? Such questions are justified, more especially as previous studies (Recherche Communautaire, 1969; Hagbergh, 1960, quoted by Turbiaux, 1971) have shown that lower level employees and the managerial staff have divergent perceptions of the causes of accidents.

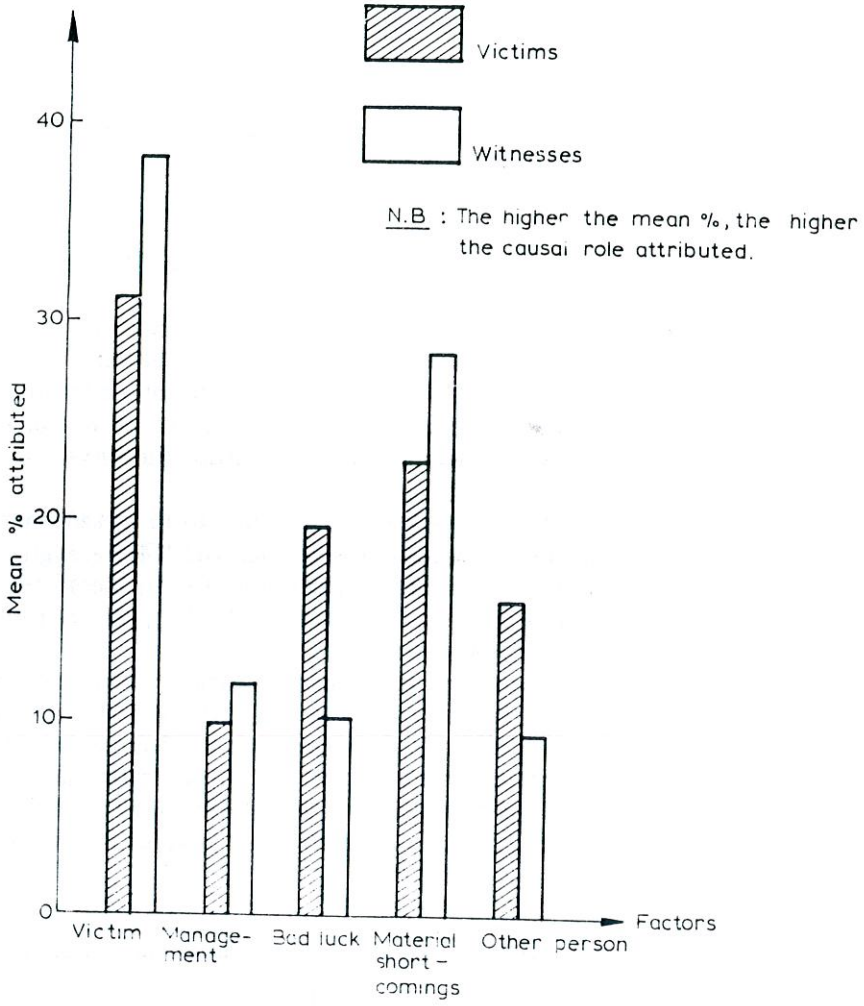


Fig. 1. Average attributions of accident witnesses and victims.

## 2. Degree of involvement, hierarchical level and causal attributions

TABLE 1

Involvement in an accident by hierarchical level (experimental design)

| Hierarchical level | Implication level | | |
|---|---|---|---|
| | Victims | Witnesses | Total |
| Employees | 44 | 17 | 61 |
| Lower managerial staff | 35 | 20 | 55 |
| Higher managerial staff | 14 | 10 | 24 |
| Total | 93 | 47 | 140 |

### 2.1. Effect of hierarchical level by level of involvement

*Victims*: The victims who are members of the managerial staff tend, on average, to attribute accidents to themselves more than the victims who are employees do, but the differences are not statistically significant. On the other hand, the victims who are employees (E) and the lower managerial staff* (LMS) attribute more to bad luck than the victims of the higher managerial staff (HMS) do ($p < 0.005$ between E and HMS; $p < 0.01$ between LMS and HMS). There is no difference concerning the attribution to the chief, to the material and to "other persons".

*Witnesses*: Employees ($m$ = 41.2%) and lower managerial staff ($m$ = 42.5%) who were witnesses have a slight tendency to attribute to the victim more than do higher managerial staff who were witnesses ($m$ = 29.0%). Likewise, the employees and the lower managerial staff who were witnesses attribute more to the chief than the witnesses of the higher managerial staff do ($p < 0.01$ in both cases). Lastly, the witnesses of the higher managerial staff attribute on an average more to bad luck (21.0%) than the employees (4.1%) and the lower managerial staff (7.0%) who were witnesses do.

### 2.2. Effect of involvement level by hierarchical level

By maintaining the hierarchical level constant, we notice that:

(1) Employees attribute more to management when they were witnesses than when they were victims ($p < 0.05$) and tend to attribute less to the victim when they were victims than when they were witnesses, though this last difference is not statistically significant.

(2) Higher managerial staff tend to attribute more to management when

*Lower Managerial Staff (LMS): designates those one can in a sense consider to be of the managerial staff but who are in a relatively low position; i.e., foremen, chiefs of works site, works foremen, etc. Actually and hierarchically they are between the employees and the management and are directly responsible to the latter for the execution of the work. Higher managerial Staff (HMS): designates those of the managerial staff who are in a high position, i.e., directors, heads of important departments, managers. They are more responsible for the general policy of the firm than the former.

they were victims than when they were witnesses, but tend to attribute less to the victim when they were victims. In the same way, they tend to attribute less to bad luck and to the material when they were victims than when they were witnesses. These differences are not statistically significant (with a threshold of $p < 0.05$).

(3) Finally, lower managerial staff tend to attribute less to the victim when they were victims than when they were witnesses ($p < 0.06$). On the other hand, they attribute more to bad luck when they were victims than when they were witnesses ($p < 0.03$). Lastly, the witnesses of the lower managerial staff attribute more to management than the victims of the lower managerial staff do ($p < 0.03$).

## DISCUSSION

### *1. Effect of involvement level on attributions*

The results show obvious divergences between the attributions of subjects who were accident victims and those of subjects who were accident witnesses. These divergences are not notably modified by the hierarchical position occupied in the firm, more particularly with regard to the attribution to oneself as accident victim. Indeed, whatever their hierarchical level, subjects tend to attribute less to the victim when it was themselves than when they were witnesses. In addition, victims attribute more to bad luck than witnesses do and, this is true for employees and for lower managerial staff. In other respects, witnesses attribute more to management than victims do, but this is particularly true for employees and for lower managerial staff. Higher managerial staff attribute more to management, especially when they were victims.

### *2. An external attribution factor: accident severity*

If on the whole accident witnesses attribute accidents primarily to a fault of the victim and tend to minimize the causal role of external factors, such as the fault of another person, bad luck, etc., it is not quite true that the victims attribute the accidents they had mainly to external factors. Of course, it has been observed that the victims tend to minimize their own causal responsibility by increasing the attribution made to external factors such as bad luck, another person, etc. But it is difficult to understand that they attribute to themselves a no less important degree of responsibility, if not the most important compared with the attribution made to the other factors, unless one assumes that the accidents the victims attribute to themselves principally are mild ones. Indeed, according to defensive attribution theory, people have no difficulty in attributing to themselves events with mild or positive outcomes.

In order to verify this last point, we classified the severity of the accidents

related by the subjects in three levels of severity and we tried to determine whether the victims attribute to themselves more mild accidents than severe ones.

The results show that victims actually attribute mild accidents more willingly to themselves than severe ones. Moreover, the more serious the accidents they have had, the less the victims attribute them to themselves ($m$ = 43.8% for benign accidents; 30.0% for accidents with average severity and 16.8% for severe accidents).

*3. Involvement in an accident: a defensive attribution factor*

As it can be noted, our hypothesis derived from Jones and Nisbett (1971) is therefore verified.

A plausible interpretation of these results can be formulated in terms of defensive attribution. Indeed, analyses that somewhat overlap the framework of the present research (Kouabenan, 1982) show that accidents which a person experiences himself are relatively more attributed to bad luck than accidents which one reads about and still more than accidents generally. This statement can be related to the fact that attributing the causes of an accident of which one has been a victim or a witness is less neutral than attributing the causes of accidents "in general" or the causes of accidents which one reads about. In the last two cases, one does not refer to a definite situation or, if one does refer to a well-defined situation, the personal implication is less important. Therefore, attribution to a person is not very important. On the other hand, when one is directly involved in an accident situation, one is more inclined to attribute responsibility. This is all the more likely as accident victims (yet more personally involved) attribute a greater causal role to bad luck than accident witnesses do; just as victims attribute less to themselves, especially when the accidents are severe. There is thus here a manifestation of a certain defence mechanism (blame avoidance, self-esteem safeguard).

Finally, the fact that witnesses attribute a great deal of causal responsibility to the victim and to the material but very little to "another person" or to bad luck, can be interpreted as a self-protective tendency (as according to Walster, 1966) aiming at reassuring them, or a defensive tendency of harm avoidance and/or of blame avoidance (Shaver, 1970b).

## CONCLUSION

This research, while corroborating or improving certain points of the attribution theory (divergences between the actor and the observer), shows that the study of causal attributions could constitute an important aspect of the study and prevention of accidents.

From a practical point of view, an application of these results could be in training and, more particularly, in training towards safety. It is indeed

important that the different persons concerned in the analysis of an accident be informed and conscious of the diversity of possible attributional tendencies. For example, they can be taught that the victims and the witnesses of an accident have different perception of its causes. Thereby, an attempt can be made to seek and to compare causal analyses deriving from sources as varied as possible, and to avoid confusing cause with guilt while analysing an accident.

Finally, because of the theoretical and practical importance of this mode of research, it would be desirable to develop research with similar aims and to help specify the determinants and consequences of the causal attributions of industrial injuries.

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