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## Accident Research in Germany – Experiences of an Interdisciplinary Project

### Abstract

The accident research project in Dresden was founded in July 1999. To date over 6.000 crash investigations have been undertaken. About 10.000 vehicles have been documented and over 13.000 participants have been debriefed. But there is much more than this scientific success.

Because of the interdisciplinary character between the medical and technical focus, the project affords an important contribution for the education of the involved students. Over 200 students of different fields of study have got experiences not only for the occupational career.

This lecture describes the additional effects of the accident research project regarding the education of the students, the capacity for teamwork and learning about dealing with accident casualties.

### Form of Organization

The Accident Research Unit at the University of Technology Dresden is part of the GIDAS project, established by the German Automotive Industry Research Association (FAT) and the Federal Road Research Institute (BAST). Approximately 1 million inhabitants live in this area of about 3.000km<sup>2</sup>

### Work Scope

During the shift the team consists of two technicians, one medical student and one coordinator. Especially at the accident side the teamwork is of high priority. The team is especially provided with different cameras and measuring instruments for documentation, photogrammetry and measuring purposes.

Furthermore the following data are collected:

- environmental conditions,

- particular construction features of the vehicles involved,
- design of the roads,
- traffic control.

The vehicles involved in the traffic accident are carefully investigated regarding:

- vehicle deformation,
- points of passengers' impact or off-road users outside the vehicle,
- technical identification data, vehicle type and equipment.

All persons involved are interviewed about:

- sequence of events during accident,
- persons' height and weight,
- driver's license with possible special conditions and other details.

Vehicles that cannot be investigated at the accident site are inspected the following day by another technical student.

The medical student drives to the scene of the traffic accident with an extra research vehicle. At the scene the medical employee supports the rescue units and starts the documentation of the injury patterns.

To complete this collection of data, information about the subsequent treatment of the injured in the hospital is added. The type, severity and location of all the injuries are documented.

Up to now more than 6.000 accidents are investigated by the accident research project in Dresden. Each accident side was measured and detailed drawing and extensive picture records were made. About 10.000 vehicles were inspected. More than 13.000 single collisions were detected and reconstructed. All in all about 20.000 single injuries were diagnosed by more than 7.500 injured participants in the last 7 years.

More than 3.000 single facts have to be coded by the students for each case. The complete duration for handling the data is about 25 hours per case.

These many facts indicate the high claim and interdisciplinary approach of the project. The correlation between technical and medical facts has a need for a complex teamwork at accident side and the later diagnosis and coding of the data.

## Education of Students

About 50 students are employed continually for the documentation of accidents in the project who major either in automotive engineering or human medicine.

Since 1999 more than 220 students of different fields of studies get a special education at the project.

Every driver takes a great responsibility using the special right of way through the use of siren and flashing blue lights on the way to the accident site. Therefore all drivers of the research vehicles are trained on the legal background and the practical handling using the special right of way, on a quarterly basis. More than 25 of these trainings were implemented since 1999. In addition, a driving safety and handling training is offered in the same period of time.

Furthermore mainly the technical employees are instructed in providing advanced first aid.

They have to learn and train interview techniques, dealing with accident casualties and the understanding of technical, medical and road building aspects regarding the accident casualty.

Only extensive education of the technical students could provide such an intensive work. The same is obtained by medical students.

All students get an 2 months special education and single certification before they can work independently at the accident scene.

Additionally there were made over 50 seminar papers, diploma and master thesis in the last 7 years at the Accident Research Unit in Dresden.

## Capacity for Teamwork

All students have learned to deal with injured participants up to fatalities at the accident scene. The ability to work in a team is the most important criteria for employment as a student in the research team. Further competences especially in psychological interview with the accident participants are important, too.

Further additional facts are the interdisciplinary effects for the students and the rational work mode they have learned. Most of the students talk about an individual learning process during the employment. Not less talk about a much more

defensive individual characteristic of driving and personal maturity.

So the accident research project is more and more a secondary education for the employees. The function is more than investigation of accidents.

Nevertheless the duration of employment is not longer than 2 years normally. After that time the students complete their study and make an application for employment in the free market mostly with very good chances of success.