Lessons from in-depth crash investigation – the art of interviewing

Interviews play a key role in understanding the events and causes of a crash, as physical evidence collected at-scene (e.g., tyre & scrape marks) can be insufficient to determine the motivations or behaviour of the individuals involved.

Thus the primary aim of an interview is to obtain a first hand account of the crash from the individuals involved, focusing on their actions and cognitive processes (e.g., perceptions and decision making). As such, the success of the interview is largely dependent on what the individual remembers of the crash and the interviewer’s ability to elicit this information.

An individual’s memory for a crash, as for any event, is dependent on the cognitive processes they engage that enable them to encode the event into memory. In order to create a complete and accurate memory of an event, the individual must first be aware that the crash is going to happen, recognise that they may need to create a memory of it, and attend to the stimuli that will form the basis of the memory. It is at this point that knowledge of what is important to remember plays a key role. Most people will largely be inexperienced when it comes to remembering a crash (as opposed to a birthday party) and this will influence the type of information that they remember. It is likely that aspects of the crash that stand out to the individual involved are different to those of interest to the investigator but this does not mean that no memory has been formed. With this in mind, consider the nature of a crash.

Crashes are largely unexpected events that typically have a short duration. As such, the individual often has very little warning to commence encoding the event into memory. Indeed, by the time they reach this stage the crash itself may be over. Furthermore, certain aspects of a crash may attract more of the individual’s attention such that they fail to attend to other aspects of the crash. This may result in some aspects of the crash being remembered more clearly than others, while some aspects of the crash are not remembered at all.

Thus, it is the role of the interviewer to facilitate the recall of information as accurately as possible. Fortunately, there are a number of strategies and techniques that can assist this process. At the outset it is necessary to build some rapport and make the interviewee feel comfortable. It may also be necessary to reinforce guarantees of confidentiality to encourage honesty. The interviewer should be accepting of the interviewee’s point of view to further encourage them to speak freely.

The first step in eliciting a full description of the crash is to get the interviewee to recall the event freely from their perspective without interruption. Memories are formed within the context of the event (i.e., what you are doing, where you are, how you are feeling, physical sensations, sounds, smells, etc.), thus it is useful to help the interviewee recreate the context of the crash by asking a series of questions that essentially set the scene for the crash. This both assists recall and provides a point from which the narrative can commence. The interviewer should then address individual aspects of the crash in a logical sequence prompting the interviewee for additional detail or clarification as necessary. This process is essentially walking them through their memory of the crash one step at a time and allows the interviewee to focus on unique aspects of the crash independent of the whole, which may bring to light facts that have been previously overlooked.

The crash is to get the interviewee to recall the event freely from their perspective without interruption. Memories are formed within the context of the event (i.e., what you are doing, where you are, how you are feeling, physical sensations, sounds, smells, etc.), thus it is useful to help the interviewee recreate the context of the crash by asking a series of questions that essentially set the scene for the crash. This both assists recall and provides a point from which the narrative can commence. The interviewer should then address individual aspects of the crash in a logical sequence prompting the interviewee for additional detail or clarification as necessary. This process is essentially walking them through their memory of the crash one step at a time and allows the interviewee to focus on unique aspects of the crash independent of the whole, which may bring to light facts that have been previously overlooked.
Message from CASR

At CASR we have had a busy and interesting 2010 and we are proud of our staff and our achievements. Our unique program of at-scene crash investigations has continued and demonstrated its value again through our recent investigation of barriers and clear zones. This work won the best paper award at the recent road safety researchers conference and has the potential to change the way we approach roadside design. Our ongoing work on getting benefits from vehicle technology is being followed throughout Australia and internationally and we expect our current research on the role of medical conditions will be of great interest when it is completed in 2011.

One of the highlights of our year has been working with Professor Fred Wegman of SWOV through his role as South Australian Thinker in Residence. This relationship is continuing as the new South Australian Road Safety Strategy is developed.

We are also looking forward to moving into our new laboratory in 2011. Our pedestrian impact testing has always been known for its technical excellence and accurate results but it will be rewarding to be in a location where we can more easily demonstrate our work to visitors from around the world. Our next newsletter will feature the role of vehicle design in pedestrian safety and the work of the Impact Laboratory. We will also be letting you know when you will be able to visit our new facility.

Finally this will be our last newsletter for 2010 so all of us at CASR wish you a happy and safe holiday season and a successful new year.

Mary Lydon, Director, mary@casr.adelaide.edu.au

Conference acknowledges work of CASR researchers

CASR staff won two awards at the Australasian Road Safety Research, Policing and Education Conference in Canberra in September.

Sam Doecke and Jeremy Woolley won the Peter Vulcan Award for Best Paper for the paper titled ‘Effective use of clear zones and barriers in a Safe Systems context’.

James Thompson won the John Kirby Memorial Road Safety Award for Best Paper for the paper titled ‘Older drivers in rural and urban areas: comparisons of crash, serious injury, and fatality rates’.

Full text copies of both papers can be found on the CASR website or at www.rsconference.com.au

Motorcycling Australia scholarship recipient to study the causes of motorcycle crashes

Adrian Weissenfeld commenced a PhD in August after receiving a scholarship from Motorcycling Australia to study a topic in the area of motorcycling safety. Adrian hopes to identify the causes of motorcycle crashes in Australia. His initial research will involve analyzing in-depth crash investigation data with the aim of developing a course of study that examines rider behaviour, attention and awareness.

CASR researcher invited to cross-examine Swedish thesis

Robert Anderson travelled to Sweden in September to cross-examine a thesis applicant. The thesis defence was made by a student at Chalmers University, Gotenborg on the topic of ‘Animal model of rotationally induced diffused brain injury. The student gave a seminar before the thesis defence and Robert was able to announce the decision of the grading committee to hear in front of his friends and family.

While in Sweden, Robert also presented an overview of CASR work to staff at SAFER (a joint university/industry research centre in Goteborg) and gave a seminar at SWOV, the Institute for Road Safety Research, in the Netherlands.

CARS welcomes new staff member

Phil Jensen-Schmidt commenced with CASR in September in the role of Office Administrator. Phil is on secondment from the University’s Electrical and Electronic Engineering School until December 2011 and brings a wealth of experience to the role.

In the spotlight – Matthew Baldock

Matthew began with CASR in 1996, taking the opportunity to use his background in psychology for applied research.

Designing safer roadsides – the use of clear zones

It is well documented that single vehicle collisions with fixed roadside objects such as trees and power poles represent a large proportion of serious and fatal injuries in Australia and around the world.

Crasps on rural roads tend to be more severe due to the relatively high travel speeds on those roads. The traditional engineering approach to making rural roads safer should a vehicle leave the road is to either adopt a clear zone or protect hazards with crash barriers. Past approaches to rural road design have tended to favour the use of clear zones over barriers.

Clear zones represent areas beside the road that are clear of hazards such as trees and poles. In theory, they allow a wayward vehicle to manoeuvre back onto the road without striking a fixed object. Usually, nine metres is regarded as the preferred clear zone width on straight sections of road. In practice, however, much narrower widths exist on the road network.

Collisions with hazardous objects such as trees and poles result in high injury severities because the force of impact is focussed on a very small area of the vehicle. Crash barriers spread the impact over a much larger area therefore reducing the forces on vehicle occupants and the consequent likelihood of injury.

CASR is conducting an exploratory study that is re-examining the use of clear zones as the preferred roadsides safety treatment for collisions with fixed roadside objects as compared to barrier treatments.

An analysis of our in-depth crash investigations of single vehicle run off road crashes revealed that many vehicles travel beyond nine metres when they leave the road if they have not already struck a fixed object.

A number of these crashes were simulated using advanced computer techniques to determine the typical trajectory of vehicles when they leave rural roads out of control. The relationship between the speed of a vehicle and its lateral distance from the edge of the road throughout the departure event was investigated.

The simulations suggest that adequate clear zones to ensure impact speeds that do not cause injury cannot practically be provided in most situations. Instead, narrow clear zones used in combination with crash barriers may provide the most cost effective way to ensure that rural roadsides are safe for vehicles that leave the roadway.

For more information please contact Sam Doecke, sam@casr.adelaide.edu.au

At the scene

At the scene

At the scene

At the scene