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International Calibration of Conflict Techniques
ICTCT-Studies in Malmö and Trautenfels

Design of the Malmö-Study

by

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Introduction

Within the group of traffic safety researchers working with TCT, there was growing interest of comparing the different countries techniques and applications. The first idea of a joint calibration study was born.

The aim of such a study were:

1) to compare the different techniques with regard to similarities and differences and how different teams record the same conflict-situations, over-all compared with objective measures.

2) let every participating team present a safety diagnose for the studied sites.

After a time of preparational discussions the swedish town Malmö was selected for the purpose where the calibration study could take part.

At a planning meeting in Sweden several possible intersections with different characteristics as, type of regulation, location in the city, geometry, recording sites, etc., was inspected.

The time for the fieldwork was limited to two weeks. The optimal compromise with regard to available time and need of enough data was to limit the number of locations. Three intersections were then selected for the study. Each intersection then should be studied for three days. The selected intersections had a little various conditions in a positive way, but in common they had a considerable mix of roadusers and were fairly busy, at least for swedish circumstances.

Intersection n:o 1 in the study
Intersection n:o 2.

Intersection n:o 3, signalised
Participating in the study.

For conflict calibration study following teams took part:

Austria: Kuratorium für Verkehrssicherheit (KFV), Vienna
Canada: Transport Canada, Ottawa
Finland: Technical Research Centre (VTT), Espoo
France: Organisme National de Sécurité Routière, (ONSER), Arcueil
Germany: Technical University, Braunschweig
Great Britain: Transport and Road Research Laboratory (TRRL), Crowthorne
Netherlands: Institute for Perception (IZF-TNO), Soesterberg
Sweden: University of Lund, Lund
USA: Midwest Research Institute, Kansas City

At the same time an accident analysis and behavioural study were carried out by the Danish Council of Road Safety Research.

The objective data were collected by using a videobased technique by the Institute for Perception (IZF-TNO), Soesterberg, the Netherlands.

Besides above the mentioned teams, representatives from the Road Safety Centre at Technion, Haifa, Israel, the Department of Civil Engineering, University of Leuven, Belgium, the local road office of Malmö and the Swedish National Road Administration, followed the study.

The participating countries team used their own techniques. In a couple of cases, France and Sweden also took the opportunity to test different scales of the technique. For the calibration study some other modifications were caused by the following reasons:

- the number of observers had to be limited
- shorter observation period in total
- various intersection geometry

All eight teams performed the observations simultaneously through the whole study. From the start there was an uncertainty about what would happen when 15-20 observers were exposed at the same location. The fears were needless - when the experienced observers started working, they merged into the surroundings and did not wake any attention or were disturbed by each other.

Three days of observation at each intersection, appr. 6 1/2 hour of observation every day, spread over the day, but peak hours were covered two or three times, in order to obtain as many conflicts as possible. For the same reason only weekdays were used for observation.
Recording and labelling

The number of observers varied between one and three of each team.

All countries used their own observers except for Canada, which trained three Swedish observers in advance of the study.

Before every new location, the observation area was strictly defined. Restriction lines were often the zebras, and/or what was possible to cover with the video recordings.

The observers were free to choose their observer-location and what they were familiar with.

The common position of the two observers were diagonally, and 5-30 m upstream in the approaches along, the video-recordings were made.

A common data sheet was used of all teams. To identify the different situations the observers were instructed to fill in the exact time when the conflict occurs. All observers were equipped with digital watches that were synchronized. Other data was collected as well, about the conflict the road users were involved in, severity, colour of cars, age, sex, etc.

On the data sheet there was also space left over for each team to add information for internal use.

After each day of observation one set of data from each team was delivered to the labelling team.

FIGURE: (Next side) Example of the common data-sheet used.
Sketch of conflict:  

Please note: Trajectories, number or reference of road-users, particular movements as breaking, stopping, skidding, falling etcetera.

Additional data/Comments (to be defined by each team)
The labelling team used video-recordings to identify the recorded conflicts. Every conflict-situation was given a unique number and a list was also made up with conflict number, the exact time of the conflict, conflict type manoeuvres and the number of teams scoring the situation as a conflict.

Objective data were collected by the team from IZF-TNO, the Netherlands. The major purpose of the quantitative analysis was to produce an objective description of conflict situations for the comparison of severity ratings between the teams.

A method, based on recordings from video, followed by a quantitative analysis, was used. (See van der Horst 1982, 1983)

For the whole study 48 hours of video recordings were made. Three different video systems were in practice. U-matic was used for the objective analysis, a time-lapse video-recorder was running besides and also during the intervals between observation periods, and finally a VHS-recorder was in function for the next days labelling session.

LITERATURE

The Malmö Study, A calibration of traffic conflict techniques. 1984. Institute for Road Safety Research, SWOV. Leidschendam. The Netherlands