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THE BEHAVIOUR OF TEENAGE CYCLISTS AT T-JUNCTIONS

By R H Green and D Southall

The Key Facts

A study by the British motoring club AA has shown that cyclists at T-junctions usually keep to the rules, but do not ride carefully enough. Child cyclists, say the researchers and the AA, need training in defensive cycling. No mention is made of any changes in motorists' practice which could help to improve road safety.

Contents

The study was undertaken by the 'AA Foundation for Road Safety Research', a charity set up by a British motoring club, the Automobile Association. It shows that according to the latest statistics there has been a sharp increase in Britain in road accidents involving children, especially at T-junctions.

Over 2800 cyclists, including 1250 children, were observed by video cameras at 80 T-junctions in 3 different areas. They were classified according to their compliance with the recommendations in the British 'Highway Code'. Whilst in general 7.5% of cyclists broke the rules, this figure was significantly higher at junctions for certain groups; for cyclists riding in company the figure was 31%, and for children aged between 10 and 19, 35%. Although it is often thought dangerous to break the rules of the road, only 2% of cyclists put themselves in any danger, and only 0.2% endangered other vehicles. Cyclists tended to ride more carefully the older they were (see Fig 1) and the heavier the traffic was (Fig 2). The observers estimated that just under half the cyclists (49%) were riding without due regard for road safety.

Without analyzing the behaviour of the motorists, and the researchers and the AA who commissioned the study have used the results to issue a press release giving recommendations on road safety training for young cyclists. Instead of learning self-confidence in traffic, they say, they should concentrate on learning how to ride defensively.

Study

"The behaviour of teenage cyclists at T-junctions" by R H Breeze and D Southall. Commissioned by the Automobile Association Foundation for Road Safety Research, Loughborough 1990 Addresses: R H Breeze, D Southall, Institute of Consumer Ergonomics ICE, 75 Swingbridge Road, Loughborough, Leicestershire LE11 OJB, England. AA Foundation for Road



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The behaviour of teenage cyclists at T-junctions

**AN OBSERVATIONAL STUDY FOR THE AA
FOUNDATION FOR ROAD SAFETY RESEARCH**

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Executive summary

THE BEHAVIOUR OF TEENAGE CYCLISTS AT T-JUNCTIONS
(Institute of Consumer Ergonomics, Loughborough)

Introduction

An examination of national accident statistics shows that casualties to child cyclists have increased recently. Additionally, research has shown that the reporting of such accidents takes place, perhaps, in only one case in three.

Within the casualties reported a large proportion takes place at T-junctions and a majority occur to older children with a peak in the early teens.

This behavioural study has concentrated, therefore, on teenage cyclists negotiating T-junctions.

Method

Observation sites were selected to offer varying traffic conditions with a reasonable probability of use by cyclists. More than 2800 cyclists were seen, of whom over 1250 were teenagers. They were recorded on videotape at 80 T junctions in three counties. The observations were coded for analysis on a computer database. The correct, or prescribed, manoeuvre and behaviour for the purposes of this analysis was drawn from the *Highway Code*, the *Cycling Proficiency Handbook* and other relevant publications.

Findings

a Manoeuvres

The manoeuvre performed most frequently was to cycle past the mouth of the minor road. Doing this in either direction was more frequent than any other manoeuvre and may help to explain the predominance of this manoeuvre in accident reports. In a small number of cases the cyclist crossed the major road directly opposite the minor road, mainly to or from a footpath.

b Adherence to rules

A number of cases (84) of flouting general road rules or regulations were observed, although this only formed 7.5 per cent of the total observations. When it came to following the correct route through the junction 35 per cent of cyclists failed to do so - this was more likely when turning into the minor road. Of the cyclists riding two or more together 31 per cent were in a formation considered inappropriate for the conditions.

One third of those carrying luggage were judged to be doing so unsafely. One in four performed a manoeuvre which involved riding on the pavement. Only one cyclist was observed to be leading a dog on a lead.



c Hazard creation

In spite of the level of non-adherence to rules and prescribed behaviour the level of hazard creation was judged to be low. Only 2 per cent of cyclists were seen as presenting a hazard to themselves and only 0.2 per cent towards other vehicles.

d Attention and confidence

When a subjective judgement as to whether the cyclist was paying attention to riding safely was applied 49 per cent were less than attentive and 6 per cent were clearly distracted. This level of attentiveness decreased when riding in company but increased with density of traffic. It also increased with age.

The general demeanour of the cyclists was also evaluated and 94 per cent were judged to be riding their machines with confidence. There was some slight association of levels other than 'confident' with younger riders.

e Effects of traffic

Levels of traffic on the road during observations were predominantly light. This was also the situation with pavement traffic.

The propensity to follow the prescribed route through the junction was not generally affected by the density of traffic. However, as road traffic density increases it appears that cyclists going straight ahead are less likely to follow the prescribed route than those turning right or left. This may be significant when the high proportion of accidents involving this manoeuvre is considered.

f Conspicuity aids

The total number of lights, conspicuity or safety aids seen was small and while these observations were heavily influenced by the time of year, length of day and fashion for bright clothing (cycling fashion), it is still very poor. The bags provided for paper rounds by newsagents, however, tended to be bright fluorescent/reflective colours.

g Paper rounds

The vast majority of those doing paper rounds were boys of 13 or over. There was a significant difference in the proportion of luggage carried unsafely (63 per cent paper rounds, 26 per cent others). Small numbers made sub analysis difficult but it was noted that out of seven paper boys turning right into the minor road only one followed the prescribed route.

h Type of bicycle

Fashion and age play a part in the type of machine ridden. Half of all bikes are racing bikes and half of the remainder are mountain bikes. BMX bikes are more popular among the younger riders. There was some evidence of modifications carried out to make machines more fashionable.



Implications

Within the constraints of the study (nine months, £45,000) it has only been possible to probe the data to the point where general analysis is available. Deeper probing is indicated on a number of topics where the general findings show behaviour likely to reduce safety. For example, the high rate of deviation from the prescribed route when going straight ahead, especially in denser traffic, could be examined more closely to see whether the prescribed route might be in some way in conflict with a reasonable strategy of defensive cycling. Also the practice of 'unsafe carriage' of paper delivery bags suggests an examination, as far as the filming allows, of the design of the bags.

From the outset it was intended that the 'richness' of the video image should allow this follow up probing and there is reason to suppose that this strategy will be successful.

The level of confidence of riders is a double edged sword. Some level of confidence is clearly necessary in order to ride on the road but, if it is unjustified, it may contribute to conflicts and accidents. Lack of attention and disregard of the rules and prescriptions of safe cycling can be seen as risky, yet the level of hazard creation was low. In this situation it is not surprising that traffic density appears to have little effect on behaviour in spite of the logical increase in risk.

If prescriptive education in cycling is not effective then perhaps a general defensive strategy might have more effect. Certainly there are a number of issues which will need to be addressed in future training and education programmes.

Finally, it is clear that fashion and peer group influence are demonstrating an effect on the structure and design of bicycles and on the apparel worn while riding. The power and subtlety of these influences will need to be appreciated and, if possible, harnessed by anyone wishing to influence teenage riders in the safe riding of their machines.

**Table 18 – Crosstabulation:
Paying attention
by agegroup**

AGEGROUP--> ATTENTIV	Count				Not Known	Row Total
	Row Pct	<13 years 1.0	13-16 years 2.0	>16 years 3.0		
Attentive	1.0	28 4.9	427 75.2	109 19.2	4 .7	568 51.4
Cursory	2.0	45 9.8	356 77.6	55 12.0	3 .7	459 41.5
Daydreaming	3.0	2 14.3	10 71.4	2 14.3		14 1.3
Distracted	4.0	8 12.9	53 85.5	1 1.6		62 5.6
Not Known	5.0		1 50.0	1 50.0		2 .2
Column Total		83 7.5	847 76.7	168 15.2	7 .6	1105 100.0



Table 31 – Crosstabulation:
Apparent confidence
by road traffic level

ROADTRAF-> CONFIDEN	Count Row Pct	None 1	Light 2	Mod- erate 3	Busy 4	Very Busy 5	Row Total
Lacking	1.0	1 14.3	4 57.1	1 14.3	1 14.3		7 .6
A Bit Nervous	2.0	2 15.4	10 76.9	1 7.7			13 1.2
Confident	3.0	128 12.4	652 63.1	166 16.1	75 7.3	12 1.2	1033 93.5
Blasé	4.0	4 11.1	27 75.0	1 2.8	4 11.1		36 3.3
Showing Off	5.0	4 28.6	9 64.3		1 7.1		14 1.3
Not Known	6.0		2 100.0				2 .2
Column Total		139 12.6	704 63.7	169 15.3	81 7.3	12 1.1	1105 100.0