AN EVALUATION OF CHILD PEDESTRIAN TRAINING IN THE UK: THE SCOPE FOR INTERACTIVE TECHNOLOGIES TO AID TEACHING

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Abstract

Sixty four per cent of the children killed or seriously injured (KSI) on the roads of Great Britain are child pedestrians. Recognition of this issue by the Department for Transport resulted in the introduction of a pilot child pedestrian training scheme, "Kerbcraft", from 2002-2007. Kerbcraft, which aimed to teach roadside pedestrian skills, was trialled in 75 local authorities across England and Scotland, and was successful in improving child pedestrian behaviour at the roadside. This paper presents the findings from a new survey of these 75 local authorities, identifying what training is currently given, in what ways the learning and delivery mechanisms have changed since the original pilot, and the extent to which scheme evaluation and interactive gaming are and could be used in child pedestrian training.

The results suggest that the majority of local authorities continued to provide pedestrian training but in an adapted form; often shortening schemes without considering the resulting impact on participants' knowledge and skills acquisition. Accompanied by a widespread lack of effective evaluation it is difficult to ascertain the effectiveness of these schemes compared to Kerbcraft. Given central government road safety funding cuts of 40%, along with a lack of effective evaluation, child pedestrian training could be one area at risk, and supplementary materials may be required to add value to training schemes in the future. This paper argues that interactive video environments could be one addition to the range of training aids available to child pedestrians.

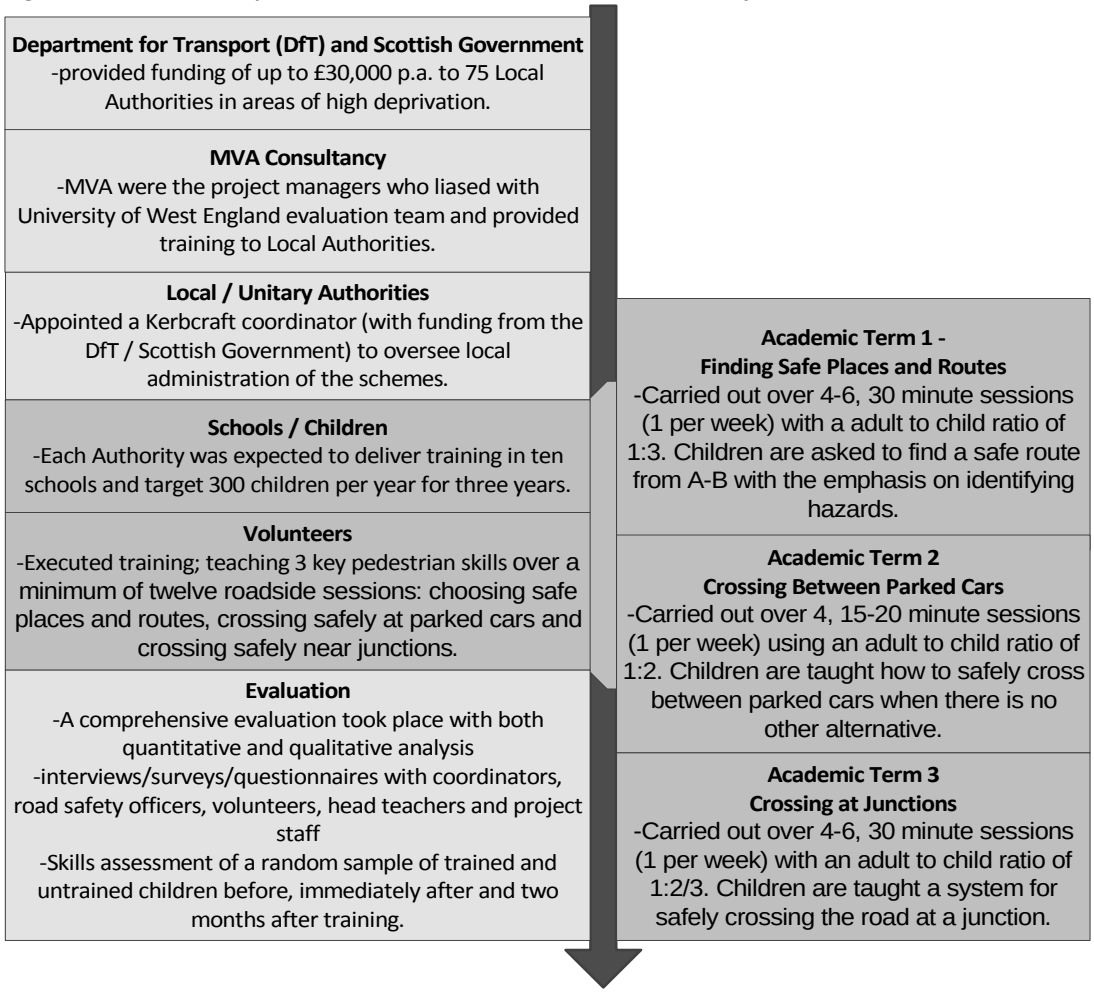
1.0. Background

Road safety is a global issue with 1.3 million deaths occurring annually on the world's roads (World Health Organisation, 2008). While 91% of these occur in less economically developed countries (World Health Organisation, 2009), there is still more that can be done to address the problem in developed countries and in the United Kingdom, the number of child pedestrians killed or seriously injured (KSI) is still a particular concern. 64% of the children killed or seriously injured on our roads are child pedestrians (2683 reported in 2008); over three quarters of these incidents occur away from marked pedestrian crossings and the main contributing factor is failing to look properly (Department for Transport, 2010a). The issue of child pedestrian casualties is recognised by the Department for Transport (DfT) and from 2002 to 2007 a national pilot of the Kerbcraft Pedestrian Training Scheme ('Kerbcraft'), funded by the DfT and the Scottish Executive, managed by MVA Consultancy, was carried out in England and Scotland. At the same time, all Welsh Local Authorities began operating Kerbcraft with funding from the Welsh Assembly Government (Department for Transport, 2010b).

Aimed at 5 to 7 year olds; Kerbcraft offers children practical training in three key areas over a minimum of twelve roadside sessions: choosing safe places and routes, crossing safely at parked cars and crossing safely near junctions (Prentice, Reilly & Dickens, 2007). A typical Kerbcraft scheme in its original format takes approximately one academic year to complete,

with one skill being delivered by volunteer trainers per term (Figure 1.1). Throughout the scheme, the volunteers act as facilitators, guiding the children's ideas and discussions rather than explicitly telling the children what to do.

Figure 1.1: *Kerbcraft pilot scheme structure, format and delivery mechanisms*



Following the pilot scheme, which successfully demonstrated "strong statistical evidence of the positive impact of training in all three Kerbcraft skills" (Whelen, Towner, Errington & Powell, 2008), MVA Consultancy carried out a post-pilot survey and found that 83% of local authorities in the trial were going to continue offering child pedestrian training but only 16% were willing to continue Kerbcraft in its original format. Authorities making changes to the scheme did so generally in order to roll it out across more schools in their area. 17% of authorities were not planning to offer any form of practical roadside training following the trials, and in most cases, this was due to a lack of available funding (Prentice et al., 2007).

The aim of this paper is to revisit the post-pilot study and report on a survey of the 75 local authorities, investigating how child pedestrian training programmes are currently being provided three years later. The paper gives an overview of the changes to scheme methodologies, delivery mechanisms, and highlights good practice. It also addresses the extent to which gaming/simulation is being used as part of the training process and reports on the extent to which the schemes are being actively evaluated long-term. This paper forms part of a wider EngD study into the use of interactive learning environments as a training tool to improve road safety knowledge acquisition in child pedestrians.

2.0. Methodology

Two similar surveys were developed, each consisting of 35 questions; one aimed at local authorities that took part in the initial Kerbcraft pilot scheme ("Survey A"), the other aimed at a sample of neighbouring local authorities that did not ("Survey B") in order to have a control comparison group. Surveys were carried out as semi-structured telephone interviews but online versions were also created to suit the needs of certain respondents. Both surveys followed a similar format, asking questions in several key areas; the background to Kerbcraft and the local authorities' current training schemes, how pedestrian training is currently delivered and evaluated, feedback on the perceived effectiveness of the schemes, other training schemes offered and finally the administration processes for road safety.

The semi structured survey consisted of both open and closed questions and was generally executed on a "cold call" basis. While this had the advantage of getting instant responses; a number of more specific closed questions were often not answered accurately, if at all. Response rates were reasonably high in both surveys, 76% for Survey A (57/75) and 65% for Survey B (17/26). Non-respondents generally opted to complete the survey online, and despite reminders did not submit a completed survey.

3.0. Results and Discussion

Of all the local authorities that took part in the original Kerbcraft pilot scheme (Survey A), 84.2% (48) still offer some form of child pedestrian training, but out of these only 10.4% (5) offer training in the original Kerbcraft format; the remainder (43) offer an adaptation. Of the nine local authorities that do not offer any pedestrian training, all but one cited funding, or a related issue, as the key reason.

Respondents were asked to give details of the adaptations made to Kerbcraft during the development of their current pedestrian training schemes. The reasons given were categorised into five key areas:

- *Increase coverage*–deliver the scheme to more schools/pupils
- *Reduce costs / resources* –reduce financial or other resource costs (e.g. staff time)
- *Reduce length*–reduce the length or the course in order to reduce the amount of time spent in schools
- *Change administrative procedures* - improve the scheme administration. This may include the removal of volunteers and providing more flexibility in the programmes.
- *Make training improvements* - respondents make a fundamental change to the programme structure/ethos/management/delivery in order to improve the training offered to children.

Figure 3.1 shows that over half of the adaptations made were to reduce costs or the length of the scheme and only 7% were altered to offer fundamental or targeted improvements to the quality of the child pedestrian training. This is a concern as the changes were generally not made to add value to the children's training but to reduce scheme delivery costs without fully considering the likely impacts on children's knowledge and skill acquisition.

Changes made (Figure 3.2) included:

- *Shortening the scheme* to have less sessions or hours at the roadside
- *Removing the volunteer element* and delivering training using trainers from a range of backgrounds e.g. teaching assistants, casual paid training staff
- *Introducing classroom based elements* to supplement or replace the on-street training, usually in the form of introductory sessions, including; watching DVDs, indoor training or classroom knowledge-based sessions.
- *Changing the delivery age group* to older children (often as a response to shortening the scheme)
- *Passing the administration* of the schemes from the local authorities to the participating schools
- *Fundamental changes* in order to improve the quality of child pedestrian training delivered.

Figure 3.1: *Reasons for adapting schemes from Kerbcraft model*

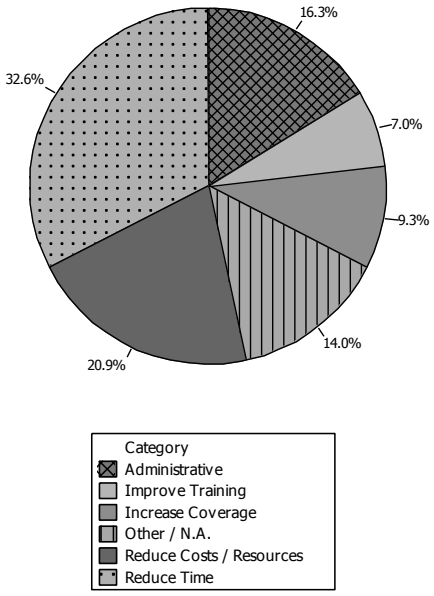
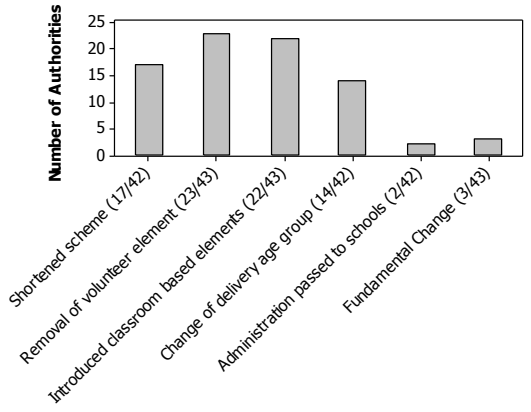


Figure 3.2: *Types of scheme adaptation compared to the Kerbcraft model*



The most common changes to adapted training schemes were the removal of the volunteer element (53%) and the introduction of classroom based elements (51%). Whilst a deviation from the Kerbcraft model, these changes are unlikely to be detrimental to training by themselves, however they were often accompanied by a reduction in in the amount of roadside training received. 40% of authorities had reduced the amount of roadside training from the minimum recommended by Kerbcraft (5 hours), ranging from minor reductions (e.g. to 4.5 hours) to only providing one 20-minute roadside session. Thirteen local authorities had reduced the amount of roadside training to 1 hour or less. This in itself may not be a problem if the reduction in time was compensated for in some way so as not to negatively impact on training quality, however in 15 cases this reduction came, in part, as a result of cost reduction measures. Of critical importance however, is the fact that these shortened schemes were not being effectively evaluated, so their true effectiveness as an instruction medium, in relation to the original programme is unknown.

Of the respondents to Survey B, who had not participated in the original Kerbcraft pilot, 64.7% offered some form of pedestrian training. Of the local authorities not offering pedestrian training, the majority stated financial or staffing issues as the primary reason with one respondent stating a lack of effective evaluation as the key reason for funding withdrawal.

Table 3.1 outlines some of the major similarities and differences in child pedestrian training between the local authorities that did and did not take part in the Kerbcraft pilot scheme.

***Table 3.1**: Similarities and differences in training between authorities in Survey A and B*

Characteristic	Survey A	Survey B
How many hours of practical sessions do children receive?	Average: 3.6 hours Range: 20 minutes to 18 hours	Average:1.34 hours Range: 20 minutes – 3 hours
Are the following skills taught; Choosing a safe place to cross? Crossing safely at parked cars? Crossing safely at junctions? Other skills?	 90% yes (43/48) 90% yes (42/48) 90% yes (43/48) 8% yes (4/48)	 91% yes (10/11) 91% yes (10/11) 91% yes (10/11) 27% yes (3/11)
	Other skills include; the basic green cross code, how to use designated crossings, gap timing and the use of 'problem crossings' in specific areas.	
Is training targeted; To deprived areas? To areas with high accident rates? Offered to all? Available on request only?	 23% yes (11/48) 17% yes (8/48) 52% yes (25/48) 8% yes (4/48)	 18% yes(2/11) 27% yes (3/11) 55% yes (6/11) 9% yes (1/11)

Pedestrian training in local authorities that did not participate in the pilot (Survey B) was generally more limited than that offered in those that did. The range of time a child could expect to receive at the roadside from Survey B was anywhere from 20 minutes to 3 hours, with the majority being offered less than 2 hours. Those authorities that took part in the Kerbcraft pilot were offering, on average, more practical training perhaps because they were trying to adhere as far as possible to the original Kerbcraft model. Targeting policies were similar across both surveys, with over half of local authorities offering training to all schools (but not necessarily *delivering* training in all schools). Targeted training was implemented like Kerbcraft, in areas returning high accident statistics and/or areas of high deprivation.

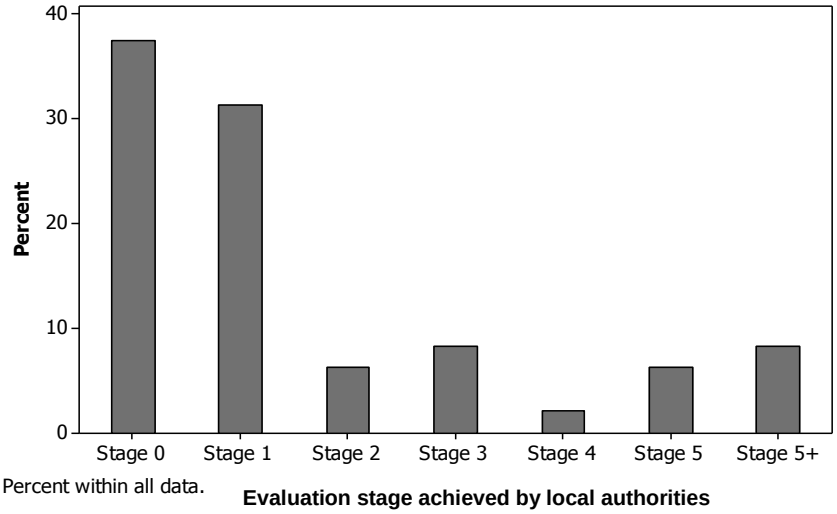
Evaluation of training schemes

There are many barriers to effectively evaluating road safety interventions in a local authority setting including a lack of understanding in terms of how to effectively evaluate and a 'business as usual culture,' where schemes are assumed to work because they have been carried out for a long time (King & Clinton, 2010). Evaluation is an important process; properly evaluated schemes that can demonstrate success will attract more legislative, community, technical and financial support, ensuring that project continuation and future development is possible (Thompson & McClintock, 2000).There are several types (or stages) of systematic evaluation, generally regarded as process evaluation, outcomes evaluation, summative evaluation and formative evaluation (Sentinella, 2004).Given that Boulanger et al., (2009) state that summative evaluation "measures the effectiveness of an intervention on the target population," the evaluation of a child pedestrian training scheme should aim to be summative, where ever possible, quantifying the actual changes in behaviour brought about as a result of the scheme. Among the pilot scheme respondents providing road safety training, 68.8% (33/48) stated that they carried out some form of evaluation of their scheme. A scale of evaluation (Table 3.2, Figure 3.3) was developed in order to gain a clearer understanding of what was being undertaken by the local authorities in terms of child pedestrian training.

Table 3.2: *Scale of evaluation*

Evaluation Stage	***Criteria***
Stage 0: No formal evaluation procedures	No evaluation carried out and/or; A reliance on evaluations of other schemes, assuming the findings will 'transfer' A business as usual culture *i.e. an attitude of "it's how it has always been done so it must be effective"*
Stage 1: Basic process evaluation	Questionnaires or interviews to gauge perceptions on how the scheme is progressing. *e.g. asking participants (children, teachers, volunteers etc) their opinion on the success of the scheme format/processes/procedures.*
Stage 2: Basic outcomes evaluation	Questionnaires or interviews to gauge the level of knowledge gained by the participants. *e.g. a test or questionnaire to gauge the knowledge / attitudes acquired by the scheme.*
Stage 3: Combined outcomes and process evaluation	A combination of Stages 1 and 2
Stage 4: Partial summative evaluation	Some evidence that the real objectives of the scheme are being measured *i.e. measurement of behavioural change rather than the level of knowledge / attitudes acquired*
Stage 5: Full summative evaluation	Strong evidence that the objectives of the scheme are being measured. A full summative evaluation must include a before and after test of a sample of children to show behaviour has changed. Stage 5+ allocated to evaluation schemes that involved a before, after and delayed after behavioural assessment, similar to the Kerbcraft model (Figure 1.1)

Figure 3.3: *Stage of evaluation achieved by local authorities following the Kerbcraft pilot scheme.*



The results suggested that, where evaluation exists, the vast majority takes the form of a basic process evaluation; most commonly consisting of questionnaires or feedback forms given to children / schools/ parents / volunteers to gauge their opinions on how successfully

the schemes ran. While this type of evaluation is valuable, allowing local authorities to improve the day-to-day execution of schemes, it does not statistically quantify that their learning outcome aims (i.e. a positive change in roadside behaviour) are being achieved. A similar situation was found in local authorities not involved in the pilot scheme with 36% not carrying out any formal evaluation, 45% undertaking a basic process evaluation, one local authority producing a basic 'outcomes' assessment looking at attitudes, and one attempting a behavioural analysis. In the majority of cases, the evidence suggests that it would be very difficult to prove, from existing evaluations, that a particular training scheme was having a positive impact on behaviour given the lack of summative behavioural evaluation undertaken.

Evidence from accident statistics

While comparing accident statistics in a catchment area before and after the introduction of child pedestrian training can in no way establish a causal link with the specific scheme, through the use of data with applied controls, inferences can be made. Using the DfT Road Accidents Database (Department for Transport, 2009) the numbers of 10-14 year olds who had been in a reported road accident in which the pedestrian was masked by a parked or stationary vehicle were extracted. This resulted in a sample of data representing accidents in a targeted age group in which poor roadside pedestrian behaviour, which pedestrian training targeted (i.e. finding a safe place to cross), was a contributing factor. Table 3.3 outlines the reduction in reported 10-14 year old casualties from 2000 to the 2007-9 annual average in a variety of pedestrian training scheme formats.

Table 3.3: *Reported child pedestrian accidents among Kerbcraft and non-Kerbcraft sample authorities (10-14 years old, masked by parked or stationary vehicle) 2000 to 2007-9*

Sample description	**Baseline number of reported incidents** (2000, before Kerbcraft pilot)	**Average number of reported incidents** (2007/9 annual average)	**Percentage reduction in reported incidents** (2000-2007-9)
Pilot scheme authorities who had continued with Kerbcraft (n=5)	99	49	51%
'Kerbcraft Wales' (n=22)	50	25	50%
Pilot scheme local authorities with shortened, high coverage schemes. (n=6)	95	44	53%
Non- pilot scheme local authorities, not delivering child pedestrian training. (n=6)	68	39	43%

All authorities that deliver some form of training have shown greater reductions in child pedestrian incidents than those authorities offering no child pedestrian training. These reductions however are not as great as one might expect, given the effort required to run a scheme. One reason for this may be that the overall coverage of child pedestrian training schemes is limited when compared to the total target population in each local authority. Looking at the coverage of child pedestrian training along with several other factors, we can deduce which, if any, have a relationship with the overall accident rate. Table 3.4 shows the characteristics of a sample of the local authorities that took part in the Kerbcraft pilot scheme along with their accident rate for 10-14 year olds who had been in a reported road accident in which the pedestrian was masked by a parked or stationary vehicle. The data show that the lowest accident rate is achieved by authority (361) with a low deprivation score and a low ethnic diversity indicator suggesting that these characteristics could be contributing factors. Other factors which could have had an impact on the reduction in reported pedestrian accidents include the proportion of children being driven to their destinations, engineering measures (traffic calming etc.), publicity campaigns and other engineering, education and enforcement programmes.

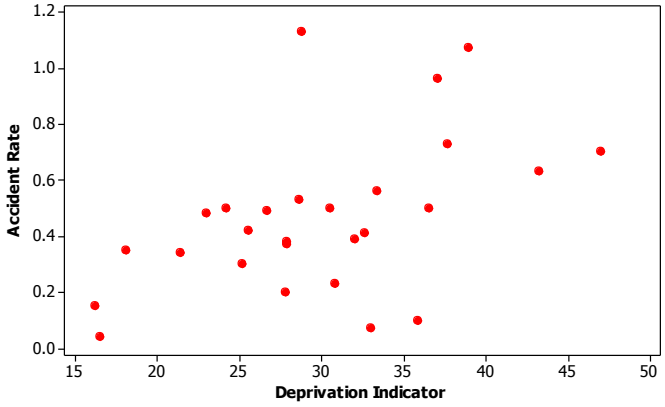
Table 3.4: Key characteristics of authorities and their adapted training scheme coverage

ID	Rural / Urban Classification	Average hours of training per child in the total target population (Coverage)	Deprivation Indicator	Ethnic Diversity Indicator	Accident Rate	Evaluation Stage (see Table 3.2)
319	1	0.4	28.78	10	1.13	4
329	2	0.6	38.94	11	1.07	1
606	1	5.3	37.03	25	0.96	2
328	2	0.6	37.66	6	0.73	1
683	1	0.5	46.97	12	0.7	5+
529	1	2.9	43.2	4	0.63	5
581	1	3	33.33	47	0.56	0
839	1	0.3	28.62	48	0.53	3
849	3	4.7	30.48	4	0.5	1
508	2	0	24.21	14	0.5	0
828	1	0.2	36.51	12	0.5	0
029	3	0.4	26.64	19	0.49	3
034	4	1.6	23.01	13	0.48	0
332	2	2.6	25.56	16	0.42	5+
900	3	0.5	32.61	4	0.41	2
409	1	1.2	32	29	0.39	1
639	2	1	27.84	16	0.38	1
402	2	0.2	27.9	5	0.37	5
481	1	1	18.06	10	0.35	1
677	1	0.9	21.42	12	0.34	0
610	1	3	25.13	5	0.3	5
021	3	2.4	30.84	6	0.23	1
464	2	1	27.76	18	0.2	0
651	1	0.6	16.16	13	0.15	1
356	3	0.5	35.83	25	0.1	5+
591	1	0.9	33.02	27	0.07	1
361	6	0.5	16.49	8	0.04	3

Definitions:
Rural / Urban Class - the extent to which a local authority is rural or urban.1=major urban environment, 6 = rural environment (Office for National Statistics, 2009a).
Deprivation Indicator –The average deprivation score from the 2007 Indices of Deprivation. The score is based on a range of socioeconomic factors and a score of 16.16 indicates the least deprived and 46.97 indicates the most deprived areas in this sample.(Department of Communities and Local Government, 2007)
Ethnic Diversity Indicator – the percentage of people not classed as White: British. 4 indicates a low ethnic mix, 48 indicates a high ethnic mix (Office for National Statistics, 2007)
Accident rate: indicates the estimated 10-14 year old child pedestrian accident rate per 100,000 population. Population estimates: (Office for National Statistics, 2009b). Accident Stats: DfT Road Accidents Database (Department for Transport, 2009).

Using data from table 3.4 Pearson correlations for linear relationships were carried out to determine the extent to which the local authority characteristics and the accident rates are linearly related. No linear relationship was found between urban/rural classification ($p=0.097$), diversity indicator ($p=0.923$), or coverage ($p=0.398$), and the accident rate. The only characteristic variable producing a linear relationship with accident rate in this data set is the deprivation indicator (Figure 3.4, $p=0.009$). With a correlation coefficient of 0.5 the

Figure 3.4: *The relationship between deprivation indicator and accident rate*



relationship is not very strong, but it does indicate that areas of higher deprivation are more likely to have higher child pedestrian accident rates. Local authorities 683, 529 and 606 for example all have comparatively high deprivation indicators along with high accident rates. This trend may be one reason why authority 606 offered a comparatively longer child pedestrian training scheme. There does not appear to be a linear relationship between the coverage of the child pedestrian schemes and the accident rate; one would expect those areas with higher accident rates to be providing more child pedestrian training than those with comparatively lower rates. The effectiveness of the schemes is difficult to determine from these data alone, especially given the small annual number of reported child pedestrian accidents in each local authority; once again highlighting the importance of evaluation.

4.0. Good practice and novel content

While five local authorities had continued offering child pedestrian training in a similar format as Kerbcraft, which by definition can be considered good practice, some have deviated from Kerbcraft in order to add value and improve their child pedestrian training schemes. One method of delivery which differed significantly from Kerbcraft takes the form of a 'training and assessment programme' (TAPS), developed by the Knowsley Council road safety team. The programme emphasises that roads are dangerous at all times, whilst teaching the skills critical to safe pedestrian behaviour through carrying out common pedestrian tasks whilst, for example, walking to the local shops. This programme has evaluation built into its core; children being assessed on their pedestrian skills at the beginning of the programme and receiving a series of skill grades from A-D. As well as these skills being addressed on-street during practical training sessions, a report of this assessment is generated and then given to parents along with a training guide. Parents are then expected to address the deficiencies in their child's pedestrian skills. Three months later, children are reassessed to see if the intervention has worked. This programme therefore offers a targeted, self-evaluating alternative to Kerbcraft; allowing trainers to spend more time on less developed pedestrian skills without having to directly implement a separate evaluation programme. TAPS also directly involves parents; making them aware of the scheme, the deficiencies in their child's pedestrian skills and actively encouraging them to take part in their child's safety. Similar methodologies could be integrated into other pedestrian training schemes in order to improve the effectiveness of their evaluations.

5.0. Interactive video simulation and gaming

The use of gaming / simulation to aid pedestrian training in itself is not good practice unless it positively impacts on safe practice on the road. One scheme which includes gaming content and was being delivered by a number of local authorities is 'Stepping Out with Togo and Nogo,' developed by Manchester City Council. This scheme is integrated with a computer based video resource which uses two animated characters, "Togo" and "Nogo," to teach children five road safety lessons before practical roadside training is undertaken. While a number of local authorities had adopted this scheme, it is unclear whether the computer based materials had been evaluated.

Interactive video can be defined as video in which the "user [is able to] affect the flow of the video and that [their] influence, in turn, affects the user's future choices" (Stenzler & Eckert, 1996). The results from this survey suggest that interactive video simulation is not currently used in any child pedestrian training scheme but that it is apparent that it may have been used in the past in at least one local authority the form of General Accident (GA) interactive

road safety videos which were a basic form of interactive video available in the 1980s. The road safety officer in question stated that the GA videos "worked really well," and research by Chambers (1997) noted that when testing the GA videos along with a range of interactive tools, interactive video aided teaching academic and life skills to special needs pupils. A modernised alternative could be useful in current training schemes. On the other hand, many local authorities are sceptical about the effectiveness of interactive video in addressing child pedestrian accidents stating that there is no substitute for practical training.

While this scepticism is understandable, it is clear from the survey findings that funding problems are one of the primary reasons for not providing child pedestrian training. Given that central government road safety funding has been cut by 40% (Brake, 2010) and local authorities are having to make savings; in one example facing cuts of 68% and the redundancy of a school travel advisor (Telegraph, 2010), it may well be that child pedestrian training will be one of the areas affected by cuts and as a result effective material, such as interactive video, will be required to supplement pedestrian training.

In order for successful learning to take place, it is essential for any interactive video technology to account for the underlying cognitive mechanisms of learning and memory (Dror, Ashworth & Stevenage, 2008). If teaching procedures do not correctly utilise these cognitive mechanisms, learners cannot effectively learn, store and recall information and behaviour will not change (Dror, 2008). It is therefore critical that in the development of any interactive tool designed to improve roadside behaviour, especially one aimed at children; these cognitive mechanisms (specific to the age group concerned) are accounted for.

There are several examples of effective interactive resources being produced. Of key relevance to child pedestrian training is the 'computer based pedestrian training resource', designed to target four key pedestrian skills and that was developed for the Department for Transport in 1998 - 2000. The skills the resource targeted were; finding safe places to cross, vehicle awareness, gap timing and acceptance procedures and the perception of other road users' intentions. Using an animated environment, shown in Figure 5.1, the resource simulated realistic road traffic scenarios with the aim of teaching children, aged 5-11, pedestrian skills to a comparable level of effectiveness as practical roadside training (Tolmie et al., 2002).

Figure 5.1: Animated environment utilised in the pedestrian trainin resource, Tolmie et al., (2002)

The training resource developed by Tolmie et al. (2002) was evaluated to ascertain the impact on roadside behaviour through a repeated measures test. It was to be successful in its aims and while it was never intended to be a stand-alone training solution, the resource "led to substantial improvements in both roadside behaviour and children's understanding in all four of the skills dealt with, and in all three age groups." The exception to this success was shown in six year old children when finding safe places to cross. While eight and ten year old children showed improvements, six year olds showed no improvement in safe route construction, post-training. Tolmie et al. (2002) suggest the reason for this is a lack of learning transfer from the simulated environment to the roadside. It is possible that this transfer could be made more effective through the use of real roadside video footage used in an interactive video environment rather than the animated setting used in the resource. One example of interactive video, where it was suggested possible to teach 'hard' skills (such as pedestrian skills), was developed by Cherrett et al., (n.d). This interactive resource taught university students health and safety skills through the use of a video demonstrating poor health and safety practices. Students highlighted poor practices in the video in order to learn through other peoples' failure and 75% stated that the use of interactive video had

'enhanced their learning experience'. This concept could be transferred to the medium of child pedestrian training.

Similar studies of interactive software environments, such as Rosetta Stone and the Tactical Language and Culture Training System (TLCTS), which portray real life scenarios have shown that interactive software can have a statistically significant positive impact on the users' skills post training (Surface, Dierdorff, Watson, 2007 & Rockman et al., 2009). The TLCTS is used by various military organisations to teach foreign languages and makes use of a realistic 3D animated environment in order to immerse the user in virtual surroundings in which learning can take place (Alelo Inc, 2010). Rosetta Stone teaches foreign languages to the commercial consumer market and consists of a computer environment that makes use real-life imagery along with conversation and voice recognition, again to immerse the user into a virtual environment (Rosetta Stone, 2010).

Through the application of sound cognitive principals along with innovative practices shown in other interactive training tools, interactive video training may make a useful addition to the training aids available for child pedestrians.

Conclusions

Child pedestrian training schemes were being offered in the majority of surveyed local authorities that both did, and did not take part in the Kerbcraft child pedestrian training pilot scheme (2002-2007). The majority of authorities that took part in the pilot scheme altered their pedestrian training scheme in at least one way but generally this was not with the aim of improving training and perhaps more importantly these altered schemes were not being effectively evaluated. The effectiveness of child pedestrian training is difficult to deduce from national accident statistics and given that little evaluation is taking place in order to prove a scheme's worth along with government budget cuts; road safety interventions including child pedestrian training could face cuts. This positional paper concentrates on urban locations as a result of the high deprivation criteria required by Kerbcraft; it does not focus on the impact rurality has on child pedestrian training, the impact of training on individual local authority accident statistics or non-linear relationships between accident rates and local authority characteristics. These areas could be developed in the future. Interactive video training may be one innovative and effective method of offering supplementary training material to children in local authorities where the schemes have had to be reduced or cut completely.

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