

Traffic Safety Education and Awareness Activities in Japan

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1 Introduction

The number of fatalities in traffic accidents in Japan has been declining in recent years, having peaked at 16,765 in 1970. Although the number of traffic accidents increased between 1975 and 2004, the figure has been on the decline since then (see Figure 1).

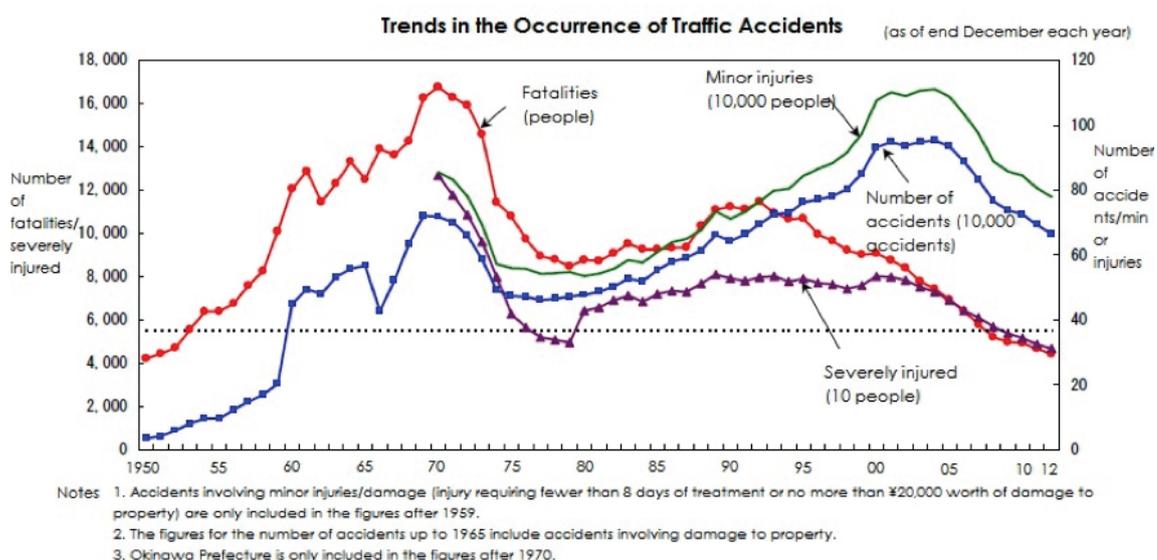


Figure 1. Trends in the Occurrence of Traffic Accidents

Source: National Police Agency Traffic Accident Situation website (<http://www.npa.go.jp/toukei/koutuu48/home.htm>)

Regarding trends in traffic accidents between 1970 and 2002, Katakura et al. [1] uses existing literature and statistical data to provide an overall summary and appraisal of the outcomes of traffic safety measures formulated and implemented in relation to roads, vehicles, and people. This paper discusses the fact that the installation of traffic safety facilities such as median strips and traffic lights contributed to a fall in traffic accidents over the ten years from 1970, and that compulsory use of seatbelts and vehicle-related safety measures also had an effect over time. In light of these outcomes, safety measures to curb traffic accidents taken both by relevant ministries and agencies and by companies can be said to have made a substantial contribution.

It is hoped that there will be further improvements in the traffic accident situation in future, but in order to achieve this, it will be necessary to implement not only measures focused on infrastructure and vehicles themselves, but also measures to raise safety awareness among road users, drivers, and road managers. For example, in recent years,

violations of traffic rules and etiquette by users of bicycles and other familiar modes of transport have come to be regarded as a social problem and there are concerns about the number of traffic accidents caused by users of such modes of transport. Moreover, looking at the actual statistics for traffic accidents involving bicycles, the number of people killed or injured while riding a bicycle in 2012 was 131,762, accounting for about 16% of casualties in all traffic accidents. Furthermore, looking at the condition and nature of casualties in 2012, 186,466 children and young people (aged 24 or below) and 115,155 seniors (aged 65 or above) were killed or injured, accounting for about 36% of all casualties (see Table 2). In particular, the fact that children and young people (aged 24 or below) killed or injured while riding a bicycle accounted for about 40% of the total cannot be ignored (see Table 2). It is hoped that such solutions will have an effect via the numerous traffic safety education and awareness activities that are already being implemented. However, as far as the author is aware, there are few resources at present that provide a systematic summary of trends in and examples of traffic safety education and awareness activities.

Table 1. Trends in the Number of Casualties by Condition

By condition	Year	Year											Change	% change	Proportion	Index
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012				
While driving a motor vehicle	Fatalities	3,463	3,056	2,945	2,741	2,382	2,030	1,724	1,627	1,625	1,465	1,417	-48	-3.3	32.1	41
	Severely injured	26,209	24,649	23,317	21,828	19,741	17,658	15,834	14,635	14,530	13,443	13,046	-397	-3.0	28.0	50
	Minor injuries	694,950	713,659	712,750	701,142	672,665	624,281	564,200	547,996	544,758	524,574	518,274	-6,300	-1.2	66.6	75
	Killed/injured	724,622	741,364	739,012	725,711	694,788	643,969	581,758	564,258	560,913	539,482	532,737	-6,745	-1.3	64.2	74
	Fatality rate	0.48	0.41	0.40	0.38	0.34	0.32	0.30	0.29	0.29	0.27	0.27	0.00P	—	—	—
While riding a motorcycle	Fatalities	777	727	675	604	595	561	568	527	516	515	460	-55	-10.7	10.4	59
	Severely injured	9,030	8,766	8,854	8,486	8,123	8,213	7,717	7,456	6,690	6,437	6,106	-331	-5.1	13.1	68
	Minor injuries	55,114	54,212	55,734	55,340	51,257	50,725	45,505	43,857	41,587	39,020	36,742	-2,278	-5.8	4.7	67
	Killed/injured	64,921	63,705	65,263	64,430	59,975	59,499	53,790	51,840	48,793	45,972	43,308	-2,664	-5.8	5.2	67
	Fatality rate	1.20	1.14	1.03	0.94	0.99	0.94	1.06	1.02	1.06	1.12	1.06	-0.06P	—	—	—
While riding a scooter	Fatalities	726	632	648	583	526	474	423	363	362	336	328	-8	-2.4	7.4	45
	Severely injured	15,754	14,815	14,066	13,358	12,344	11,802	10,562	9,665	8,940	8,172	7,517	-655	-8.0	16.1	48
	Minor injuries	100,742	95,610	94,935	90,236	80,771	76,178	67,374	62,003	58,864	53,293	47,509	-5,784	-10.9	6.1	47
	Killed/injured	117,222	111,057	109,649	104,177	93,641	88,454	78,359	72,031	68,166	61,801	55,354	-6,447	-10.4	6.7	47
	Fatality rate	0.62	0.57	0.59	0.56	0.56	0.54	0.54	0.50	0.53	0.54	0.59	0.05P	—	—	—
While riding a bicycle	Fatalities	997	980	866	851	821	749	726	709	665	635	563	-72	-11.3	12.8	56
	Severely injured	13,920	13,731	14,018	13,531	12,617	12,724	12,374	11,776	11,319	10,786	10,290	-495	-4.6	22.1	74
	Minor injuries	165,774	169,677	175,688	171,460	162,215	158,594	149,994	143,894	139,690	132,354	120,909	-11,445	-8.6	15.5	73
	Killed/injured	180,691	184,388	190,572	185,842	175,653	172,067	163,094	156,379	151,674	143,775	131,762	-12,013	-8.4	15.9	73
	Fatality rate	0.55	0.53	0.45	0.46	0.47	0.44	0.45	0.45	0.44	0.44	0.43	-0.01P	—	—	—
While walking	Fatalities	2,416	2,357	2,273	2,133	2,067	1,956	1,739	1,726	1,736	1,702	1,634	-68	-4.0	37.0	68
	Severely injured	13,290	13,045	12,473	11,683	11,231	10,568	10,258	10,121	9,988	9,763	9,629	-134	-1.4	20.6	72
	Minor injuries	72,372	72,587	70,872	69,100	66,707	63,063	61,044	58,979	59,111	55,895	54,499	-1,395	-2.5	7.0	75
	Killed/injured	88,078	87,989	85,618	82,916	80,005	75,587	73,041	70,826	70,835	67,360	65,762	-1,598	-2.4	7.9	75
	Fatality rate	2.74	2.68	2.65	2.57	2.58	2.59	2.38	2.44	2.45	2.53	2.48	0.05P	—	—	—
Other	Fatalities	17	16	18	15	12	12	17	16	18	10	9	-10.0	0.2	53	
	Severely injured	94	106	89	91	91	70	73	57	70	62	77	15	24.2	0.2	82
	Minor injuries	780	824	820	860	804	777	768	776	747	811	798	-13	-1.6	0.1	102
	Killed/injured	891	946	927	966	907	859	858	849	835	883	884	1	0.1	0.1	99
	Fatality rate	1.91	1.69	1.94	1.55	1.32	1.40	1.98	1.88	2.16	1.13	1.02	-0.11P	—	—	—
Total	Fatalities	8,395	7,768	7,425	6,927	6,403	5,782	5,197	4,968	4,922	4,663	4,411	-252	-5.4	100.0	53
	Severely injured	78,297	75,112	72,817	68,977	64,147	61,035	56,818	53,710	51,537	48,663	46,665	-1,998	-4.1	100.0	60
	Minor injuries	1,089,732	1,106,569	1,110,799	1,088,138	1,034,419	973,618	888,885	857,505	844,757	805,947	778,731	-27,216	-3.4	100.0	71
	Killed/injured	1,176,425	1,189,449	1,191,041	1,164,042	1,104,969	1,040,435	950,900	916,183	901,216	859,273	829,807	-29,465	-3.4	100.0	71
	Fatality rate	0.71	0.65	0.62	0.60	0.58	0.56	0.55	0.54	0.55	0.54	0.53	-0.01P	—	—	—

Notes:

1. Change and percentage change are based on comparisons with 2011
2. Index indicates values for 2012, with 2002 as the benchmark year (2002=100)
3. Proportion indicates the proportion accounted for within each category of harm
4. Fatality rate = number of fatalities ÷ number killed or injured × 100

Source: National Police Agency Traffic Accident Situation website (<http://www.npa.go.jp/toukei/koutuu48/home.htm>)

Table 2. Rates of Fatalities, Serious Injuries and Casualties by age group(FY2012)

Age	Casualty type	Fatalities	Injuries	Severely injured	Casualties	Fatality rate	2002		Rate of severely injured	2002		Rate of severely injured or killed	2002	
							Index	Index		Index	Index			
15 and under		92	59,097	3,066	59,189	0.16	0.29	53	5.19	6.31	82		6.58	81
	16-19	171	50,142	3,168	50,313	0.34	0.62	55	6.32	8.00	79	6.64	8.57	77
	20-24	212	76,752	3,129	76,964	0.28	0.47	59	4.08	4.86	84	4.34	5.30	82
16-24		383	126,894	6,297	127,277	0.30	0.53	57	4.96	6.09	81	5.25	6.58	80
25-29		157	77,346	2,292	77,503	0.20	0.38	53	2.96	4.14	72	3.16	4.51	70
30-39		340	154,750	4,897	155,090	0.22	0.37	59	3.16	4.19	76	3.38	4.55	74
40-49		386	139,035	5,352	139,421	0.28	0.48	57	3.85	5.10	75	4.12	5.56	74
50-59		452	99,591	5,499	100,043	0.45	0.66	68	5.52	7.06	78	5.95	7.68	77
60-64		337	55,792	4,100	56,129	0.60	0.94	64	7.35	9.49	77	7.91	10.34	76
	65-74	776	70,619	7,485	71,395	1.09	1.69	64	10.60	13.34	79	11.57	14.81	78
	75 and over	1,488	42,272	7,677	43,760	3.40	4.46	76	18.16	20.41	89	20.94	23.96	87
65 and over		2,264	112,891	15,162	115,155	1.97	2.57	76	13.43	15.55	86	15.13	17.72	85
Total		4,411	825,396	46,665	829,807	0.53	0.71	74	5.65	6.70	84	6.16	7.37	84
Eldery / All		—	—	—	—	3.7	3.6	—	2.4	2.3	—	2.5	2.4	—
(Repeated figure)														
20-29		369	154,098	5,421	154,467	0.24	0.43	56	3.52	4.51	78	3.75	4.92	76
70 and over		1,930	74,254	11,529	76,184	2.53	3.39	75	15.53	18.00	86	17.67	20.78	85

Notes:

1. Index indicates values for 2002 with 2002 as the benchmark year (2002=100)
2. Fatality rate = number of fatalities/number killed or injured × 1000
3. Serious injury rate = number of injured/number of severely injured × 100
4. Rate of severely injured and killed = number of fatalities/ number of killed or severely injured × 100

Source: National Police Agency Traffic Accident Situation website (<http://www.npa.go.jp/toukei/koutuu48/home.htm>)

Accordingly, this paper focuses on traffic safety education and awareness activities in Japan, providing a summary of the measures being implemented and the approaches used in these endeavors.

2 Overview of Traffic Safety Education Activities in Japan

2.1 Necessity of Traffic Safety Education

According to the Traffic Engineering Handbook 2008 [2], a traffic event consists of three elements: people, vehicles, and roads. It defines a traffic accident as an undesirable situation involving one of these three elements of which a traffic event consists. As stated in Chapter 1, of the traffic safety measures implemented in the past, those that focused on vehicles and roads appear to have succeeded in achieving considerable improvements in the occurrence of traffic accidents over the ten years from 1970. Regarding this point, the Handbook summarizes the positioning of traffic safety education in traffic safety measures in terms of the "3 E's" of traffic safety. As shown in Figure 2, the concept of the 3 E's of traffic safety is based on a combination of measures that are divided into the categories Engineering (in the form of traffic management and traffic engineering techniques), Enforcement (of the law) and Education, focusing on people, who constitute one of the causal factors in traffic accidents. In most cases, measures classed as engineering involve the installation of traffic safety facilities (these consist of facilities put in place by public safety commissions (the police), including traffic lights, regulatory signs, road markings, and traffic control centers; and facilities put in place by road managers, such as footbridges, sidewalks, warning signs, carriageway markings, guard rails, street lights, delineators, and traffic safety mirrors). Enforcement is positioned as the enforcement of the law (in other words, traffic control and enforcement), but if promoting and maintaining appropriate behavior and attitudes to traffic can be considered to be education, then enforcement can also be regarded as part of education. Traffic-education-related measures covered in this paper, however, will mainly focus on those implemented from a perspective of education element of the "3 E's" of traffic safety. Moreover, according to the aforementioned Handbook, people (one of the three elements in traffic events) are also deeply involved in the composition and formation of traffic events, and it states

that traffic accidents occur as a result of unsafe acts by agents of traffic behavior in the form of pedestrians, cyclists, and/or drivers, coupled with a defective, undesirable traffic environment. The same applies to traffic accidents between motor vehicles, with erratic behavior by drivers playing a crucial role in traffic accidents. Accordingly, in order to prevent traffic accidents and enhance the safety of traffic events, there is a particular need to take steps to ensure that pedestrians, cyclists, and drivers act in a safer manner. Furthermore, the Handbook states that appropriate traffic safety education tailored to the respective attributes of the agents of traffic behavior is required, in order to ensure that pedestrians, cyclists, and drivers (the agents of traffic behavior) act safely at all times during a traffic event involving motor vehicles, avoiding any unsafe behavior and adapting well to the traffic environment (see Tables 3 & 4).

This need is also discussed in Ioka and Masaoka³, which states that installing traffic safety facilities and engaging in the ongoing promotion of traffic safety measures in relation to roads is vital in order to achieve traffic safety. Moreover, this paper asserts that the issues requiring more fundamental, in-depth consideration are efforts to ensure greater prevalence of and more widespread adherence to traffic culture and traffic safety thinking, and endeavors to promote phased, systematic traffic safety education.

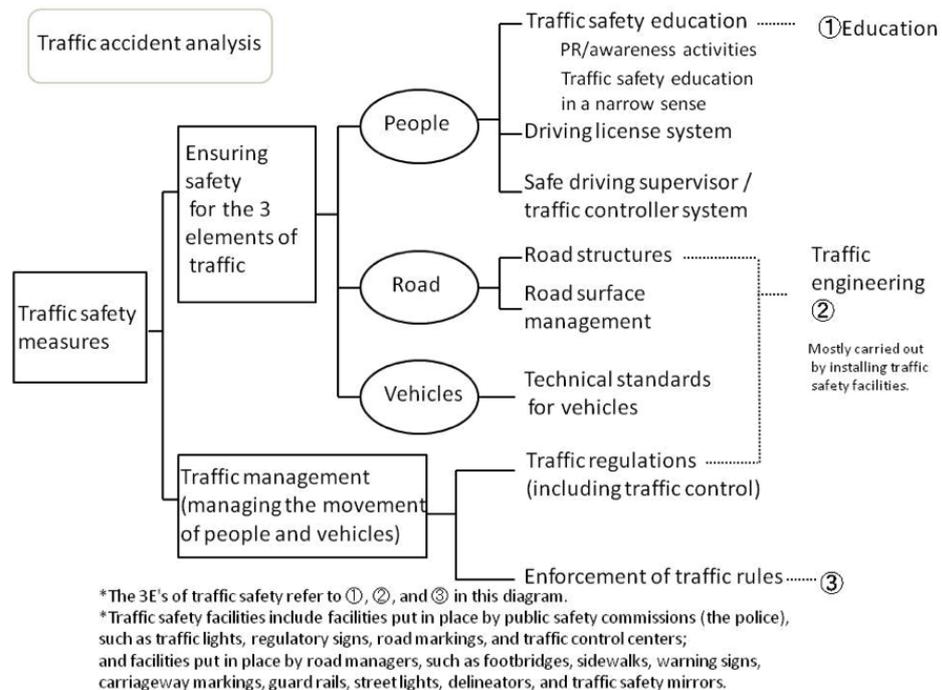


Figure 2. The Positioning of Traffic Safety Education in Traffic Safety Measures

Source: Traffic Engineering Handbook 2008, p.29-2-1

Table 3. The Composition of Traffic Safety Education Guidelines: An Overview of Objectives, Goals, and Content for Each Target Group (excluding adults)

	Objective	Basic rules	Rules for pedestrians	Rules when in a motor vehicle
Preschoolers	<ul style="list-style-type: none"> To teach them the right attitude to complying with basic traffic rules and practicing traffic etiquette, tailoring this to their stage of development To teach them the skills and knowledge required to travel along roads safely in daily life 		<ul style="list-style-type: none"> Basic attitudes Types and meanings of signs and road markings Dangerous behavior that can cause a traffic accident Places where pedestrians walk How to cross the road How to cross a railway crossing Walking when it is raining 	<ul style="list-style-type: none"> Sitting in the rear seat in a child car seat Avoiding behavior that could hinder drivers Avoiding crossing directly in front of or behind a motor vehicle from which they have just alighted
Elementary school students	<ul style="list-style-type: none"> To teach them the skills and knowledge required as pedestrians and cyclists To increase their awareness and ability in relation to predicting and avoiding danger on the roads, in order to be able to travel safely Ensuring that they can travel safely on the roads, according to the road and traffic situation 	<ul style="list-style-type: none"> The necessity of traffic rules, etc. Types and meanings of traffic lights Types and meanings of signs and road markings Obeying the instructions of police officers, etc. Things that they must not do on the road Safety when out and about, such as when traveling to and from school 	<ul style="list-style-type: none"> Basic attitudes Walking when it is raining Walking at night The safety of preschoolers, younger elementary school students, seniors, and people with physical disabilities 	<ul style="list-style-type: none"> Sitting in the rear seat and using a child car seat or seatbelt Avoiding hopping onto or off buses, etc. at the last minute Opening doors only after checking that it is safe in front of the vehicle and behind it, and getting into and out of a vehicle from the left-hand side
Junior high school students	<ul style="list-style-type: none"> To ensure that they have sufficient skills and knowledge to be able to travel along roads safely by bicycle To enable them to think about not only their own safety, but also that of others, showing consideration for others when traveling on the roads 	<ul style="list-style-type: none"> The situation regarding traffic accident occurrence Overview of traffic safety measures Awareness of themselves as members of the traffic community The responsibility of those who have caused a traffic accident Participation in traffic safety activities 	<ul style="list-style-type: none"> Compliance with traffic rules and practice of traffic etiquette Predicting and avoiding danger according to the situation on the road The safety of preschoolers, elementary school students, seniors, and people with physical disabilities 	
High school students	<ul style="list-style-type: none"> To teach them the skills and knowledge required to be able to travel along roads safely as a motorcyclist and as a cyclist Cultivating sound members of society who demonstrate social responsibility in their actions 	<ul style="list-style-type: none"> The situation regarding traffic accident occurrence Overview of traffic safety measures Awareness of themselves as members of the traffic community The responsibility of drivers Participation in traffic safety activities 		
Seniors	<ul style="list-style-type: none"> Ensuring that they understand the effects that age-related changes in physical function have on their behavior on the road Enabling those without an adequate understanding of traffic rules, etc. to travel safely on the roads by giving them a deeper understanding of the rules for pedestrians and the rules for cyclists, etc. 	<ul style="list-style-type: none"> The characteristics of traffic accidents involving seniors The effects that age-related changes in physical function have on behavior The current status of traffic safety facilities installed to ensure the safety of seniors Participation in traffic safety activities 	<ul style="list-style-type: none"> The effects that age-related changes in physical function have on walking Matters to which they should pay attention if using a motorized wheelchair Matters that they must learn in order to travel safely along the roads 	<ul style="list-style-type: none"> Wearing a seatbelt Opening doors only after checking that it is safe all around the vehicle, and getting into and out of a vehicle from the left-hand side Avoiding crossing directly in front of or behind a motor vehicle from which they have just alighted

Source: Traffic Engineering Handbook 2008, p.29-1-4

	Rules when in a motor vehicle	Things they should know about motor vehicles	Rules for motorcyclists/ motor vehicle drivers	What to do if there is a traffic accident
Preschoolers		<ul style="list-style-type: none"> • Basic matters relating to motor vehicles, etc. • Gestures • Braking distance • The danger of blind spots and differences in turning radius 		<ul style="list-style-type: none"> • Seeking help from bystanders at the scene • Telling their parent or guardian if they have been involved in a traffic accident
Elementary school students	<ul style="list-style-type: none"> • Basic matters relating to bicycles • Situations in which they must not ride a bicycle • Bicycle checks and maintenance • The proper way of riding a bicycle • Places where bicycles can be ridden • Caution when walking • How to cross at an intersection • Caution regarding pedestrians and other vehicles • Caution when parking a bicycle 	<ul style="list-style-type: none"> • How big the impact force is in the event of a traffic accident, the relationship between speed and braking distance, and reasons for blind spots and differences in turning radius 		<ul style="list-style-type: none"> • Telling bystanders at the scene their name and other details • Seeking medical attention from a doctor • Guidelines for calling 110 to notify the police
Junior high school students	<ul style="list-style-type: none"> • Practicing the proper way of riding a bicycle • Bicycle checks and maintenance 	<ul style="list-style-type: none"> • The attributes of motor vehicles, etc. • Wearing a seatbelt • Rules as a future driver 		<ul style="list-style-type: none"> • What to do if they are involved in a traffic accident • The necessity of first aid and the procedure for this
High school students	<ul style="list-style-type: none"> • Going back over things learned up to their junior high school years and ensuring that they can put them into practice without fail 		<ul style="list-style-type: none"> • Rules for motorcyclists • General knowledge that they should be taught • Things that those who have a motorcycle license should be taught 	<ul style="list-style-type: none"> • The steps that they should take at the scene if they have caused a traffic accident and their obligation to report it to the police
Seniors	<ul style="list-style-type: none"> • The effects that age-related changes in physical function have on cycling • Situations in which they must not ride/drive • Matters that they must learn in order to cycle safely 	<ul style="list-style-type: none"> • The relationship between speed and braking distance, blind spots and differences in turning radius, and gestures 	<ul style="list-style-type: none"> • Rules for cyclists, etc. • Ensuring that they objectively recognize age-related changes in physical function and driving skill • Special provisions in the driving license system relating to senior drivers, signs to place on their vehicles to indicate that they are senior drivers 	<ul style="list-style-type: none"> • Seeking medical attention from a doctor • The necessity of first aid and the procedure for this

Table 4 . The Composition of Traffic Safety Education Guidelines: An Overview of Objectives, Goals, and Content for Each Target Group (adults)

	Purpose
When obtaining a license	<ul style="list-style-type: none"> • To teach them the skills and knowledge that they must have in order to pass the driving test; to increase their ability to predict danger according to the road and traffic situation, and enhance their awareness of and ability to avoid such dangers; and to cultivate drivers who are aware of their responsibilities as drivers and demonstrate consideration for others
After obtaining a license (four-wheeled vehicle)	<ul style="list-style-type: none"> • To give them a deeper understanding of the skills and knowledge that drivers must have in order to drive safely, and to cultivate drivers who can, as members of the traffic community, contribute autonomously not only to safety in relation to accidents, but also to the safety of others and of society as a whole
After obtaining a license (motor-cycle)	
Drivers of commercial vehicles (trucks)	<ul style="list-style-type: none"> • To teach them the advanced driving skills and knowledge required in order to drive safely, and cultivate drivers who can serve as role models to other drivers
Drivers of commercial vehicles (passenger cars)	
Pedestrians	<ul style="list-style-type: none"> • To enable them to provide appropriate traffic safety education for preschoolers, schoolchildren, and seniors in their families, etc. • To provide those who have a driving license with traffic safety education from a pedestrian's perspective, so that they take into account the behavioral characteristics of pedestrians when they drive, thereby facilitating safe driving

Source: Traffic Engineering Handbook 2008, p.29-1-5

	Goals and content				
When obtaining a license	Learning the Rules of the Road				
	Increasing awareness and ability in relation to predicting and avoiding danger				
After obtaining a license (four-wheeled vehicle)	<p>Refresher education about basic matters relating to driving</p> <ul style="list-style-type: none"> • Motor vehicle checks • Driving posture and operation of apparatus • How to brake • The basics of driving methods • Steps to take in the event of a traffic accident or a breakdown • The situation regarding traffic accident occurrence, etc. 	<p>Predicting and avoiding danger</p> <ul style="list-style-type: none"> • Predicting and avoiding danger in specified situations • The attributes of other road users • Braking suddenly • The risk of skidding 	<p>Improving driving ability according to the situation</p> <ul style="list-style-type: none"> • Driving at night • Driving in the rain • Driving on snowy roads, etc. • Driving in fog • Driving on expressways 	<p>Teaching scientific knowledge required for safe driving</p> <ul style="list-style-type: none"> • The relationship between personality and driving • The relationship between human physiology and driving • The forces of nature that act upon motor vehicles • The causes of traffic accidents, etc. 	<p>Guidance concerning driving aptitude and guidance concerning driving skill</p> <ul style="list-style-type: none"> • Guidance concerning driving aptitude • Guidance concerning driving skill
After obtaining a license (motor-cycle)	<p>Refresher education about basic matters relating to driving</p> <ul style="list-style-type: none"> • Checking apparel • Selecting the model • Riding posture • How to ride around curves • How to brake • Balance when riding • Provisions concerning motorcycling in the Road Traffic Act and other legislation 	<p>Predicting and avoiding danger</p> <ul style="list-style-type: none"> • Predicting and avoiding danger in specified situations • Understanding of four-wheeled vehicles 			
Drivers of commercial vehicles (trucks)	<p>General matters</p> <ul style="list-style-type: none"> • Matters that they should bear in mind when driving commercial vehicles • The formulation and use of driving plans and operating schedules 	<p>Matters that they should bear in mind when driving trucks</p> <ul style="list-style-type: none"> • Checking blind spots and differences in turning radius, etc. • Proper loading technique • The risk posed by overloading • Matters to bear in mind on downward slopes • Predicting and avoiding danger 			
Drivers of commercial vehicles (passenger cars)	<ul style="list-style-type: none"> • Understanding the role of safe driving supervisors, etc. 	<p>Matters that they should bear in mind when driving passenger cars</p> <ul style="list-style-type: none"> • Checking blind spots and differences in turning radius, etc. • Ensuring the safety of passengers • Selecting a safe place to allow passengers to get in or out and considering their surroundings when opening and closing doors • Becoming well-acquainted with the geography of the area, etc. • Predicting and avoiding danger 			
Pedestrians	<p>Rules for pedestrians</p> <p>Rules for cyclists</p> <p>Things they should know about motor vehicles</p>				

2.2 Focus of Traffic Safety Education Activities

It is important that traffic safety education should be provided to and accepted by not only by cyclists and seniors, whose involvement in accidents has become a problem in recent years, but also all other people involved in the 3E's of traffic safety as described in the previous section. Accordingly, this section summarizes the groups on which traffic safety education activities in Japan focus. In the Traffic Engineering Handbook 2008 [2], the groups targeted by traffic safety education are broadly classified into two categories: pedestrians, cyclists, and drivers receiving traffic safety education directly, and those who are involved in promoting traffic safety education activities or providing traffic safety education/ guidance. Specific examples of both categories are described below.

2.2.1 Pedestrians, cyclists, and drivers receiving traffic safety education directly

Pedestrians include almost all those who participate in traffic events, from infants, who require a parent or guardian in order to engage in traffic behavior, and schoolchildren, who could act in a traffic situation without having fully considered their actions, to people who have a driving license and are sometimes drivers, and seniors, who have lost the ability to adapt to the traffic environment. Moreover, the composition of cyclists is regarded as being almost the same as that of pedestrians, as the former includes schoolchildren, who are not yet fully physically and psychologically developed, and seniors, who do not have adequate physical resilience.

Drivers are those who operate motor vehicles themselves and have the potential to become parties to accidents, so they are regarded as the most important target of traffic safety education activities. Here, in considering drivers as targets of traffic safety education activities, the Handbook states that they should be classified on the basis of their driving skill or the way in which they use motor vehicles. More specifically, they can be categorized as either novice drivers, who have only just obtained a driving license and do not yet have adequate driving experience; drivers who have few opportunities to drive, little driving experience, and are insufficiently accustomed to the driving environment; drivers who have adequate driving experience or skill; and those who are undergoing training in driving skills, with a view to obtaining a driving license in the future. Furthermore, they are classified according to their purpose in driving, specifically, those whose main occupation is driving; those who use a motor vehicle as a means of increasing the efficiency of their duties other than driving, or who do so as an auxiliary means of carrying out their duties; those who use a motor vehicle simply for the convenience it offers in moving from one location to another; and those who use a motor vehicle as a hobby or for recreational purposes. As such, the Handbook asserts that differences in the requirements for traffic safety education for drivers of motor vehicles should be taken into account. In addition, it applies the same approach to motorcyclists, stating that there is a particular need to give adequate consideration from the perspective of the structural characteristics and operability of the vehicle.

2.2.2 Those involved in promoting traffic safety education activities or providing traffic safety education /concerning

The Handbook defines those involved in traffic safety education as people designated by relevant ministries and agencies or legislation as being responsible for such education. More specifically, these include police staff involved in issuing/renewing driving licenses, safety education, safety management, traffic control enforcement, external duties; those involved in giving lectures to people subject to an administrative disposition requiring them to attend safe driving classes; those designated as traffic wardens or school crossing guards in accordance with Article 114-4 of the Road Traffic Law; traffic safety

education coordinators and educational guidance coordinators at nurseries, kindergartens, elementary schools, junior high schools, high schools and boards of education; staff of local government departments in charge of traffic safety measures; those designated as safe driving managers in accordance of Article 74-3 of the Road Safety Act; those designated as operation managers in accordance with Article 23 of the Road Transportation Act and Article 18 of the Motor Truck Transportation Business Act; and those involved in organizations such as traffic safety associations, PTAs, traffic-safety mothers' associations, and driving schools. In addition to the parties listed above, other related organizations such as Japan Federation of Hire-Taxi Association, Japan Trucking Association and Nihon Bus Association, as well as insurance companies and NPOs have also had an active involvement in traffic safety education in recent years.

2.3 Content of Traffic Safety Education Activities

The content of traffic safety education in Japan should be determined on the basis of the traffic behavior mechanisms, experience, and vehicle and road structures of all participants in traffic and the specific principles are stated in the Road Traffic Law and the Traffic Engineering Handbook 2008 [2]. More specifically, such education should increase the safety of the traffic behavior of all traffic participants – pedestrians, cyclists, and drivers – and meet the standards for the traffic behavior that should be learned so that they neither cause nor suffer a traffic accident. The following provides an overview of the codes of conduct in each relevant law and rule, as set out in the Handbook [2].

2.3.1 Rules set out in the Road Traffic Law

Article 1 of the Road Traffic Law states that “The purpose of this is to prevent danger on the roads, otherwise promote the safe and smooth passage of traffic, and contribute to preventing obstacles arising from traffic on the roads.” The Handbook describes the Road Traffic Law as a code of conduct detailing standard behavior for dealing with traffic events involving motor vehicles, setting out the rules for traffic. Moreover, the Handbook introduces the Traffic Safety Education Guidelines and Rules of the Road, which are based on Article 108-28 of the Road Traffic Law and which detail the standards for traffic behavior with which pedestrians, cyclists, and drivers should comply. These are set out below.

2.3.2 Rules set out in the Traffic Safety Education Guidelines

The Handbook states that the Traffic Safety Education Guidelines detail the following, with the aim of increasing the motivation of road users to utilize opportunities to learn about road safety in order to voluntarily acquire skills and knowledge concerning appropriate traffic modes and the prevention of traffic accidents, as well as ensuring that they acquire said skills and knowledge in a phased, systematic manner appropriate to their age, form of road use, or (in the case of those using the roads in the course of their professional duties) the nature of their professional duties: (1) traffic safety education content and methods that provide opportunities to gain the skills and knowledge required to drive motor vehicles, etc. safely, along with other appropriate traffic modes; (2) traffic safety education content and methods that provide opportunities to gain skills and knowledge concerning the prevention of traffic accidents; (3) other content deemed necessary for effective and appropriate traffic safety education for road users.

2.3.3 Rules of the Road

The Handbook states that the Rules of the Road sets out the following content, in order to ensure that road users can easily understand the proper traffic methods: (1) road traffic methods prescribed in legislation (the Road Traffic Law, the Road Act, the Road Transport Vehicle Act, etc.); (2) practices that it is desirable for road users to adhere to in order to prevent danger on the roads, otherwise promote the safe and smooth passage of traffic, or prevent obstacles arising from traffic on the roads; and (3) other knowledge required for operating a motor vehicle or motorized bicycle such as that concerning motor vehicle structure. The specific content of the Rules of the Road covers rules tailored to almost all situations relating to traffic events, including common rules and etiquettes for pedestrians and drivers, rules for pedestrians alone, rules for people riding in a motor vehicle, rules that should be observed before operating a motor vehicle, motor vehicle driving methods, information about driving in dangerous places, advice on driving on expressways, bicycle riding methods, rules for drivers of passenger vehicles, what to do in the event of a traffic accident or breakdown, and rules for owners of motor vehicles.

2.3.4 Rules set out in the Traffic Safety Basic Plan

The Handbook states that the Traffic Safety Basic Plan provides official examples of issues, content, scope, and attainment targets relating to traffic safety education as it stands at present, detailing these by target and application, in order to ensure the effective promotion of traffic safety education activities. The Basic Plan was first compiled by the Central Committee on Traffic Safety Measures, an organization affiliated to the Cabinet Office, in accordance with the provisions of Article 22 (1) of the Traffic Safety Policies Basic Act, which was enacted in June 1970. The 1st Basic Plan set forth the broad guidelines for traffic safety measures to be implemented over the five years from FY1971. Since then, it has been revised every five years and the 8th Traffic Safety Basic Plan covers the period FY2006 – FY2010. Katakura et al. [1] also focuses on the Traffic Safety Basic Plan in its analysis of changes in the occurrence of traffic accidents over time resulting from the effects of traffic safety education. Moreover, as of 2014, the 9th Traffic Safety Basic Plan [4] (covering the period FY2011 – FY2015) is in force, and it could be said to be an effective source of information for gaining an ongoing or comprehensive understanding of the content of traffic safety education and awareness activities.

2.3.5 Content of safety education in school education

The safety education carried out as part of school education takes a diverse range of forms these days. According to the Traffic Engineering Handbook 2008 [2], in school education, the knowledge and skills aspects of safety education are taught as part of the curriculum in health and physical education classes and related subjects, while the behavioral aspects are taught as part of safety guidance during homeroom periods, school events, student activities, and extracurricular activities. The content varies depending on the region where the school is located and the ages of the students participating with various programs and awareness activities, ranging from explanations of traffic safety facilities for pedestrians to courses on riding bicycles and motorcycles. Details of these are provided in the examples in the next chapter.

3 Trends in Traffic Safety Education and Awareness Activities as Illustrated by Examples

3.1 Overview of the Implementation of Traffic Safety Education and Awareness Activities

This chapter provides a summary of trends in the implementation of traffic safety education and awareness activities, with a primary focus on examples thereof. As described in the previous chapter, traffic safety education and awareness activities do not solely target the drivers of motor vehicles, but focus on all people who participate in traffic events. Consequently, the content of traffic safety education and awareness activities should be tailored to cover various traffic events. Tables 3 and 4 show the composition of the Traffic Safety Education Guidelines in terms of the objectives, goals, and content for each target group. Both tables set out guidelines concerning the rules to be observed when one is a pedestrian, a driver of a motor vehicle, and a user of a bicycle and the content of traffic safety education and awareness activities should also be determined according to the nature of the group targeted by such activities. The following sections provide a summary of techniques used in traffic safety education and awareness activities in Japan, interspersed with examples for each target group.

3.2 Traffic Safety Education and Awareness Activities Targeting Drivers

3.2.1 Examples of the implementation of traffic safety education and awareness activities aimed at drivers in general

This section highlights examples of the implementation of traffic safety education and awareness activities aimed at drivers in general.

(1) Education prior to obtaining a driving license and the driving school curriculum

Prefectural public safety commissions play the primary role in educating the drivers of motor vehicles before issuing driving licenses, in accordance with Articles 84-108 of the Road Traffic Law; such education and licensing dates back to 1903 (the "Regulation on Commercial Motor Buses," Aichi Prefecture). This is undertaken by prefectural public safety commissions and any corporations to which they entrust this task, in order to cultivate good drivers. The content of such education consists of either: 1. classroom instruction and skills training (on the premises) at a designated driving school, and a test upon completion; 2. an aptitude test and subject test to obtain a temporary license; 3. classroom instruction and skills training (on the road) at a designated driving school, and graduation test; and 4. an aptitude test and subject test to obtain an ordinary license; or 1. an aptitude test and subject test to obtain a temporary license; 2. practice on the roads; 3. an aptitude test, subject test, and driving test to obtain an ordinary license; and 4. the course for new drivers. An aptitude test checks drivers' eyesight, audibility, chromatic discrimination and athletic ability. If defect in any of those abilities is recognized, drivers cannot take the subject test, which checks their knowledge of driving itself, appropriate behaviors as a driver, necessary action in the case of a traffic accident, vehicle malfunction, disaster situation and so on, as well as their ability for prediction of dangerous situations.

(2) Education required by law

In accordance with Article 108 of the Road Traffic Law, prefectural public safety commissions play the primary role in providing education for the holders of driving licenses (those certified as excellent drivers, holders of ordinary licenses, those who have committed traffic violations, those renewing for the first time, and elderly people). The purpose

of this is to provide ongoing education for license holders. More specifically, given that it is not unusual for traffic laws to have been updated and the road traffic situation to have changed by the time five years have elapsed, the system of compulsory courses at the time of driving license renewal is aimed at preventing traffic accidents by increasing the safety knowledge and awareness of individual drivers by ensuring that they are fully informed of safe driving methods tailored to the new traffic laws or road traffic situation. All drivers are obliged to take these courses when renewing their driving licenses. The content of each course is determined according to the age group of the participants and whether they have committed any traffic violations in the previous five years.

[Drivers aged under 70 as of the license expiry date]

- Course for excellent drivers

This course targets drivers who have held a driving license continuously for a period of at least five years, have not been involved in any accidents or committed any violations within five years of the benchmark date, and have never committed any acts that have induced a serious violation or that resulted in injury or death off the road.

The content of the course is focused on providing information about any amendments to road traffic legislation, to those who meet the standards prescribed in the relevant Cabinet Order as drivers who have demonstrated excellent compliance with laws and regulations, as demonstrated by the fact that they have maintained an excellent standard of driving during the period in question. The course lasts 30 minutes. Since the amount of education time for those drivers is smaller than other driving license holders, education for those excellent drivers is one of the recent issues from the viewpoint of the fairness of education opportunity. Especially when excellent drivers become old, they have less opportunities to take education than other drivers under the current scheme of education for driving license holders.

- Course for ordinary drivers

This course targets the following:

1. Drivers who have held a driving license continuously for a period of at least five years and have committed no more than one minor violation (incurring no more than three penalty points) within five years of the benchmark date.
2. Those whose driving license lapsed at the time of the last renewal, but who took the course for ordinary drivers after applying to renew their expired license within six months of its lapse and were issued with a new license, and have either not been involved in any accidents or committed any violations within five years of the benchmark date, or have only committed one minor violation (incurring no more than three penalty points) within five years of the benchmark date.

The content of the course is focused on providing those equivalent to excellent drivers with information about any amendments to road traffic legislation once every five years, as well as providing them with knowledge that will improve their qualities as drivers, such as the mind-set and obligations of drivers, and knowledge about safe driving based on the traffic situation in the region. The course lasts an hour.

- Course for drivers who have committed traffic violations

This course targets drivers who have committed a violation (apart from those who have committed no more than one minor violation) within five years of the benchmark date, and drivers who have committed an act that have induced a serious violation or that resulted in injury or death off the road.

The content of the course is focused on providing participants with information about any amendments to road traffic legislation, as well as providing knowledge that will improve their qualities as drivers, such as the mind-set and obligations of drivers, and knowledge about safe driving based on the traffic situation in the region. The course lasts two hours.

- Course for those renewing their license for the first time

This course targets drivers who have held a driving license continuously for a period of less than five years, and have either not been involved in any accidents or committed any violations within five years of the benchmark date or have committed no more than one minor violation within five years of the benchmark date.

The content of the course is the same as that for drivers who have committed traffic violations, as there is a very high accident rate among drivers renewing their licenses for the first time. The course lasts two hours.

[Drivers aged at least 70, but under 75 as of the license expiry date]

The course for seniors is taken before senior drivers in this category apply to renew their licenses. This course involves a classroom session, two forms of guidance, and a discussion. More specifically, the classroom session is a lecture that covers the reality of the car-centered society, the characteristics of traffic accidents, and safe driving mind-sets and basic knowledge. The driving aptitude guidance is based on the results of a test carried out using testing equipment. In addition, instructors accompany senior drivers in this category as they actually drive a car, and the observations from this session form the basis of the driving guidance. In the discussion on safe driving, participants discuss problems based on real-life experiences.

[Drivers aged 75 or over as of the license expiry date]

A preliminary examination and the course for seniors are taken before senior drivers in this category apply to renew their licenses. The preliminary examination is also called the test of cognitive skills and tests the driver's memory and judgment. Depending on the results of the preliminary examination, the driver then takes the course for seniors, which supports safe driving by senior drivers.

(3) Correctional education for those subject to administrative disposition

Prefectural police headquarters carry out correctional education for those who have been subject to administrative disposition ordering the suspension or revocation of their driving license in accordance with Article 103 of the Road Traffic Law, due to repeated traffic accidents or violations. Correctional education takes the form of one-to-one safety guidance from an instructor on a course at a safe driving school for those subject to administrative disposition. In terms of content, this form of education includes diagnosis of the driver's aptitude for driving, using the aptitude test compiled by the National Research Institute of Police Science; based on the results of this, the instructor corrects problematic driving behavior and provides guidance about safe driving behavior. At present, the test and guidance lasts 30 minutes for those subject to short-term administrative dispositions, 60 minutes for those subject to medium-term administrative dispositions, and 80 minutes for those subject to long-term administrative dispositions. Guidance is subsequently provided in either group or one-to-one interviews.

(4) Novice driver period system

This is organized by prefectural public safety commissions, targeting those who have obtained their driving license within one year. The objective is to curb accidents resulting from the fact that the driving skills of those who have recently obtained their driving license are worse than those of drivers who have built up adequate experience since

gaining their license. This system is coordinated by prefectural public safety commissions and any corporations to which they entrust this task. Under this system, those who have incurred three or more penalty points within a year of gaining their license (excluding cases in which a single penalty point was incurred on three separate occasions) either undergo a novice drivers' course or have to take their test again, with their license being revoked if they do not pass this.

(5) Thorough adherence to the use of seatbelts and child car seats

These activities are organized by prefectural public safety commissions in order to increase usage of seatbelts and child car seats. Prefectural police forces are in charge of implementation, conducting practical, hands-on traffic safety education using crash test videos and "seatbelt convincers" that allow people to experience for themselves the effects of using a seatbelt. The objective is to ensure thorough adherence to the use of seatbelts by all passengers in a vehicle, including the rear seats. Moreover, they encourage widespread use of child car seats via PR targeting parents and guardians at kindergartens and nurseries, and provide instruction in how to fit such seats properly, in order to ensure that they are used correctly. In addition, they lobby local government bodies and private sector groups to enhance relevant support systems.

(6) Initiatives by centers involved in traffic safety education

Various traffic safety associations implement a range of activities aimed at furnishing people with the skills required to drive a motor vehicle safely. The following are examples that the author has referred to in the scope of his research.

- Hyogo Prefecture Traffic Safety Promotion Center, Hyogo Traffic Safety Association
This center features various experiential devices, models, and panels designed to allow people to learn traffic safety knowledge and etiquette through hands-on experiences involving looking, thinking, and driving. In addition, it carries out driving aptitude diagnoses and traffic safety education for senior drivers.
- Tochigi Traffic Safety Association
The association has facilities that allow people to actually experience first-hand the various dangers that can arise due to climatic conditions or road environments, thereby enhancing their judgment and ability to avoid accidents.

(7) Hands-on experience of driving and safety course using a simulator installed on a truck (Hokuto-go)

This is an experiential traffic safety course implemented by Hokkaido Prefectural Police. The course focuses on predicting danger, with the aim of cultivating drivers who will independently adopt safe driving behavior. In order to achieve this goal, participants undergo hands-on experience of driving and a safety course using a simulator installed on a truck (see Figure 3).

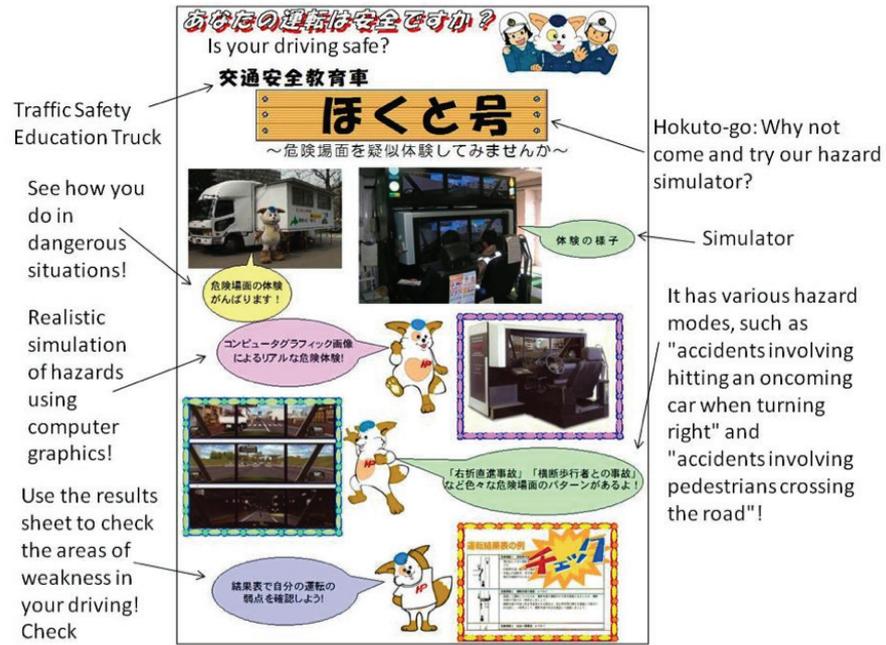


Figure 3. Example of Traffic Safety Education Using Hokuto-go

Source: https://www.police.pref.hokkaido.lg.jp/info/koutuu/anzaen_kyouiku/hokuto_gou/hokuto_gou.html

(8) Initiative by the Metropolitan Expressway Company Limited (Smart Driver)

The Metropolitan Expressway Company is running a communication-based traffic safety campaign targeting drivers who use the Shuto Expressway in Tokyo, with the objective of reducing traffic accidents. The Metropolitan Expressway Company Limited uses the Internet to target drivers who have registered as members with calls to participate in the events and campaigns that it organizes with the aim of reducing the number of accidents, as well as disseminating other information about safe driving.

[The Driving Actions of Smart Drivers]

5 KNOWLEDGE 【スマートなドライブを実施するドライブアクション】

- 1 GOOD ACCELE**
空いている時、渋滞時、ETCゲート通過時、発進時、道路状況に応じたスピードで、スマートな走り。
- 2 EARLY BRAKE**
カーブ手前の直線でアクセルを緩め、早っリブレーキを踏んで早めに減速してからカーブへ。心の余裕が大事です。
- 3 WINKER COMMUNICATION**
道路、車線変更時のウィンカーや渋滞時のハザード。早めの表示が、悪いやりのハートを伝えてくれます。
- 4 KEEP DISTANCE**
車線変更を避けては車道も渋滞も起こりにくい。車線時は「学校のプール」分の確保がひとつの目安です。
- 5 USE INFORMATION**
道路状況をインターネットやラジオで調べ、ルートを確認しておく。余裕ではる大人のなせむをばす。

⑦ 押さえておきたい3つのテクニック

雨の日は GOOD ACCELE

雨雲が降りやすい日の日は通常以上にスピードを落とすのがおすすめです。スマートなアクセルワークで道路を滑り抜けましょう。

渋滞時の KEEP DISTANCE

レーダー電波を浴びたい渋滞に巻き込まないため、渋滞時は車間に注意を払い、適度に車間距離を保ちましょう。

カーブ手前で EARLY BRAKE

カーブ手前の直線でも減速したから、スピードを遅く、滑りながら減速事故を起こさないようにブレーキを踏んで早めに減速しましょう。

1. When the roads are clear, when there are traffic jams, when passing through an electronic toll gate. Drive smart, at a speed appropriate to the time of day and road conditions.
2. Ease off the accelerator while on the straight before a curve in the road, then gently brake and slowly reduce speed before going into the curve. It's vital to be in the right frame of mind when driving.
3. Use your turn signal when changing direction or lane and use your hazard lights when there is a traffic jam. Early signaling demonstrates your consideration for others.
4. Maintaining an appropriate distance from the car in front makes accidents and traffic jams less likely. When the roads are congested, a good rule of thumb is to maintain a distance of about 25m (about the length of a school swimming pool) from the car in front.
5. Find out the road conditions via the Internet or radio and check your route. Mature drivers ensure they set off with plenty of time to spare.

The 3 techniques you need to master

Good acceleration on rainy days
Accidents are six times more likely to happen on rainy days, when the road surface is slippery. Reduce your speed with smart acceleration.

Keep your distance when roads are congested
Conquering the temptation to use your mobile is the real sign of a smart driver. Pay attention to your surroundings when roads are congested and maintain an appropriate distance from the car in front.

Brake early before curves
When you see red stripes on the road ahead of a curve, check your speed. To ensure you don't scrape against the side wall, brake to slowly reduce your speed.

Figure 4. Example of the Smart Driver Initiative by the Metropolitan Expressway Company Limited

Source: <http://www.smartdriver.jp/action/>

3.2.2 Examples of the implementation of traffic safety education and awareness activities aimed at those who drive in a professional capacity

This section highlights examples of the implementation of traffic safety education and awareness activities aimed at those who drive in a professional capacity for a company, etc.

(1) Traffic safety education by safe driving managers at businesses, etc.

Organized by companies in accordance with Article 9 of the Road Traffic Law, this is traffic safety education that targets the drivers of vehicles used by companies. The objective is to ensure safety when a company uses motor vehicles to carry out its business operations. The implementation coordinator is determined according to the number of vehicles that the company uses: in the case of a company with at least one vehicle with a passenger capacity of eleven or more, or at least five other motor vehicles (with a motorcycle regarded as half a vehicle), a safe driving manager must be appointed at each base of operations that uses vehicles; in the case of a company with twenty or more vehicles, a deputy safe driving manager must be appointed to assist the safe driving manager in their duties. In terms of content, this education consists of: (1) the formulation of appropriate operational plans that prevent overwork due to excessive driving hours, as well as taking into account other factors crucial to safe driving, including drivers, operations, vehicles, and the situation on the roads; (2) deploying a relief driver if there is a risk that driving for long periods or long distances, or driving overnight could impede safe driving, due to overwork; (3) putting in place instructions and measures concerning the response in the event of extreme weather conditions or any other abnormal situation; (4) conducting roll calls and other checks before drivers begin their shifts, identifying and taking steps to deal with drivers who are at risk of being unable to drive normally, due to alcohol consumption, overwork, illness, or any other reason; (5) ensuring that drivers keep a daily log of their driving operations; and (6) providing guidance for drivers regarding the skills and knowledge required to ensure safe driving.

The Japan Safe Driving Center conducts studies of the status of operations, with a primary focus on the traffic safety education carried out by safe driving managers [5].

(2) Safety education manuals for trucks, buses, and taxis

These have been compiled by Safety Policy Division, Road Transport Bureau, Ministry of Land, Infrastructure Transport, and Tourism. The purpose of compiling these manuals is to enable business operators to use them together with their own in-house manuals, taking into account the specific nature of their operations when instructing and supervising their own drivers.

(3) Project to promote support for accident prevention measures

This is a traffic safety initiative implemented by Safety Policy Division, Road Transport Bureau, Ministry of Land, Infrastructure Transport, and Tourism, with the objective of supporting traffic accident prevention initiatives implemented by road transport operators. The initiative involves (1) support for efforts to upgrade traffic control; (2) support for advanced initiatives to prevent overwork due to excessive driving hours; (3) procurement of instruments that will help to prevent overwork due to excessive driving hours; and (4) support for in-house safety education. Ministry of Land, Infrastructure, Transport and Tourism introduced Transport Safety Management Evaluation System in 2006. The system promotes activities that enhance the independent and proactive transport safety of companies related to transportation business, and urges them to continuously improve their own safety in accordance with the PDCA (Plan, Do, Check and Act) cycle each company developed. The ministry evaluates the safety activities of the companies to check

their management systems. The evaluation includes interviews for the transport safety management leaders and coordinators of the companies and examination of the documents and records of their safety management. It also includes advices on how they can develop a safety management system that improves the current situation and increases the effect of their safety activities [6].

3.3 Traffic Safety Education and Awareness Activities Targeting Senior Drivers

This section highlights examples of the implementation of traffic safety education and awareness activities aimed at senior drivers.

(1) The Positive Aging Driving Course traffic safety education program for senior drivers

Implemented by Japan Automobile Manufacturers Association, Inc., this initiative seeks to improve driving behavior and safety consciousness among senior drivers as well as enhance activeness in their daily lives (positive aging) in order to contribute to efforts to enable such drivers to take a more active role in society, in light of increased longevity among the Japanese populace. This program combines four types of traffic safety training with "traffic brain training", featuring content that is effective in increasing the ability to drive safely, safety consciousness, and brain function. Each of the subjects within the traffic safety training category has three levels and participants complete worksheets and engage in discussions under the supervision of a group leader. The structure allows training elements with different effects to be selected and combined, in accordance with the wishes and needs of the participants.

(2) Popularizing reflective items

This initiative organized by prefectural public safety commissions aims to popularize reflective gear, which is highly effective in preventing nighttime traffic accidents involving pedestrians and cyclists. More specifically, as well as engaging in proactive publicity and awareness-raising activities that make use of various media to get the message out, the public safety commissions offer practical, interactive traffic safety education and organize exhibitions of reflective gear in partnership with relevant organizations and groups, in order to provide people with a deeper understanding of the effects of greater visibility and ways of using reflective gear.

(3) Production of safety education manuals for senior drivers

Produced by the Hyogo Prefectural Police, the aim of these manuals is to improve awareness and prevent accidents. The force has produced (1) a guidance manual for seniors; (2) a manual for users of motorized wheelchairs; and (3) traffic safety manuals in Chinese and other languages.

(4) Rakugo comic monologues on the subject of traffic safety

This initiative organized by the National Mutual Insurance Federation of Agricultural Cooperatives involves activities aimed at increasing traffic safety awareness while entertaining the audience with a comic monologue in the traditional rakugo style on the subject of traffic safety, and preventing the decline in physical function through "rainbow exercises".

3.4 Traffic Safety Education and Awareness Activities in Schools and Other Educational Settings

This section highlights examples of the implementation of traffic safety education and awareness activities in schools and other educational settings. Traffic safety education in educational settings takes various forms, including initiatives by municipal governments and initiatives organized independently by schools. This paper summarizes the traffic safety education and awareness activities seen in a comparatively large number of cases and provides examples thereof.

(1) The "San-nai" (3 No's) Campaign

In 1975 or thereabouts, there were frequent reports of motorcycle accidents involving high school students, so an awareness-raising campaign was rolled out in high schools nationwide, with the aim of banning high school students from purchasing or riding/driving a motorcycle or motor vehicle. Most of the activities carried out as part of this campaign involved seeking to prevent accidents involving high school students by establishing school regulations restricting the use of motorcycles (no riding of motorcycles, no buying of motorcycles, and no acquisition of a motorcycle license). On the other hand, some students who belong to high-schools in rural areas in Japan sometimes need to commute by motorcycles. Some high schools in those areas carry out traffic safety lectures and schemes that enable the students to get a motorcycle license as part of the curriculum of the high school. These safety lectures partly take root in the civil judgment of the Tokyo District Court in 1991 that ruled against 3-nai campaign that it is illegal to subject a high school student to punishment for getting a motorcycle driving license according to school policies even if the high school prohibited students from getting a driving license. After the judgment, organizations related to the promotion of the campaign started to re-examine it. In recent years, high schools permit the acquisition of motorcycle driving licenses if students need to commute to school on motorcycles.



Figure 5. A scene of traffic safety education for motor cycle ride in high school in Tokushima Prefecture

Source: <http://www.seikogakuen.ac.jp/senior/education/safety.html>

(2) Traffic safety education initiatives at each level of school education

Various traffic safety education initiatives are implemented at elementary, junior high, and high schools. The following lists examples of these initiatives seen comparatively frequently at schools. According to the interview with the Kochi prefectural police agency conducted by the author, around 400 lectures are carried out a year, and 30,000 students join from elementary schools, junior high schools and high schools in Kochi prefecture. Contents of each school are similar: round-table talkings, practices of crossing an intersection for elementary school students and of riding bicycles for junior high school and high school students, lectures on riding motorcycles for high school students.

- Identification of traffic danger spots on routes used by elementary and junior high school students when going to and from school

This aims to provide students with the knowledge and skills needed to protect their lives against potential risks arising from school life. In addition, it instills in students the ability to behave safely in the event of imminent danger, enabling them to make appropriate judgments according to the situation. As part of such endeavors, schools create maps of safe routes to school. The creation of such maps to ensure safety is not confined to initiatives such as this one, but can also be seen in many other initiatives nationwide.

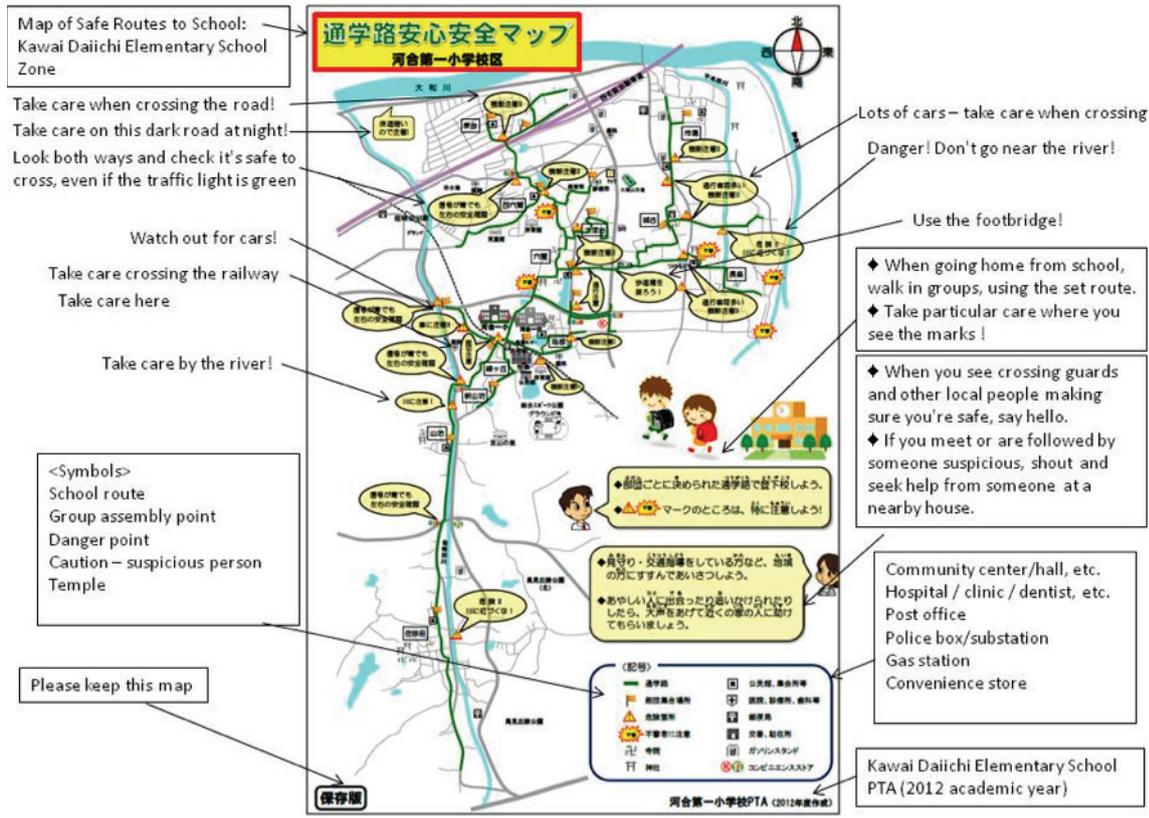


Figure 6. Kawai Daiichi Elementary School Zone Map of Safe Routes to School
 Source: <http://www.town.kawai.nara.jp/ikkrwebBrowse/material/files/group/31/ansinanzenmap.pdf>

- Karatsu Municipal Nagoya Junior High School, Saga Prefecture
 This school seeks to cultivate students who can think for themselves, learn independently, and express themselves. In order to foster respect for their own lives and those of others, and instill in them a zest for living, the school (a) strives to nurture consideration for others during ethics classes; (b) seeks to gain an understanding of each student's safety consciousness (via APP tests); (c) has created a traffic safety mascot and distributes its figures on the street; and (d) conducts traffic safety classes in partnership with the police and school crossing guards.
- Kanazawa Municipal Midori Junior High School, Ishikawa Prefecture
 In order to cultivate students who can make the right judgments regarding their own health and safety and that of others, and put these judgments into practice, this school focuses on compliance with traffic rules and predicting danger via the following activities: (a) explaining the results of surveys of attitudes to traffic safety; (b) explaining maps that highlight risks; (c) screening videos about the situation during journeys to and from school; (d) predicting danger; and (e) screening videos about proper traffic rules and etiquette.

- Kunitomi Municipal Yatsushiro Junior High School, Higashimorokata County, Miyazaki Prefecture
Students of Yatsushiro Elementary and Junior High Schools work in partnership with relevant organizations, making and distributing good luck charms with a traffic safety theme. Distributing these to local drivers helps to raise awareness of traffic safety among the students and in the local community.
- Hokkaido Tomakomai Technical High School
In order to teach students the traffic rules and etiquette required when riding a bicycle, this school has enhanced its traffic safety education, investigated and analyzed accidents, and conducted a survey of student attitudes, with the objective of promoting compliance with traffic legislation and preventing traffic accidents. In its traffic safety education, it places particular emphasis on raising awareness of traffic safety, working in partnership with elementary and junior high schools, residents’ associations, police stations, and driving schools.
- Comprehensive initiatives in Hachioji City
Traffic safety education and awareness activities aimed at instilling the traffic rules and etiquette required when riding a bicycle:
 - a) The Safe Cyclist Permit initiative: Under this initiative, elementary schools can apply to have the city hold a cycling class (a talk about traffic safety, a written test, and a practical test) for its third-year students, who receive a permit or certificate upon completion (see Figure 7).

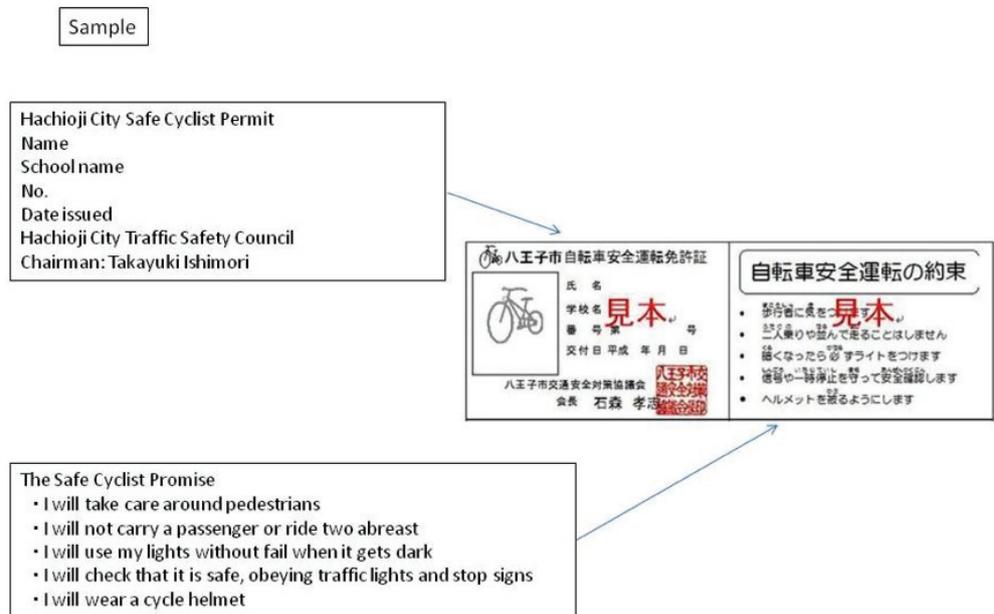


Figure 7. Hachioji City Safe Cyclist Permit

Source: <http://www.city.hachioji.tokyo.jp/seikatsu/kotsuanzen/25836/025850.html>

- b) Cycling safety classes using stunt people: The city organizes traffic safety classes using the Scared Straight approach, featuring educational simulations and re-enactments of traffic accidents by stunt people (see Figure 8). This approach has been widely used in recent years, by the National Police Agency, Japan Agricultural Cooperatives, and junior and senior high schools, among others.



Figure 8. Example of Traffic Safety Education Using the Scared Straight Approach

Source: photograph by the author

- c) Traffic safety classes led by traffic safety education instructors: These classes are tailored to the needs of the participants from the group requesting the class and include education sessions at traffic playgrounds; traffic safety classes at kindergartens, nursery schools, and elementary schools; and the use of various traffic safety videos targeting a wide range of people, from preschoolers to seniors.
- Kakehashi traffic safety education volunteer group in Aichi Prefecture
This group goes to traffic safety education and awareness events organized by schools, nursery schools, children's clubs, and other organizations; the volunteers use their special skills to provide traffic safety education and awareness activities tailored to the needs of the group that requested their assistance.

(3) Anthology of traffic safety education initiatives at high schools

The Sports and Youth Bureau at the Ministry of Education, Culture, Sports, Science and Technology compiles data on traffic safety education at high schools. More specifically, the types of information it gathers include approaches to partnerships between schools and the community (relevant organizations including elementary and junior high schools, residents' associations, police stations, and driving schools) aimed at teaching the traffic rules and etiquette required when riding a bicycle; content and methods used when teaching about the characteristics of bicycles and the knowledge and skills required to ensure safe cycling; content and methods used when teaching about responsibility and compensation for traffic accidents; content and methods used when teaching the knowledge and skills required in order to provide first aid (cardiopulmonary resuscitation technique and use of AEDs, etc.) in the event of a traffic accident, as well as measures to be taken afterwards; and teaching plans that aim to build organic partnerships with the various areas of school educational activities, such as academic subjects, extracurricular activities, and integrated learning, as well as examples of specific approaches to such teaching.

(4) AYATORII safety education program

Organized by Honda Motor Co., Ltd., this traffic safety education program targets children aged from four to twelve. AYATORII is an acronym derived from Japanese in which "A" stands for "Anzenwo," "YA" stands for "YAsashiku," "TO" stands for "TOkiakashi," and "RII" stands for "RIkaishite Itadaku." When put together, these words mean "Gently helping children understand safety." More specifically, the program is designed so that children going through the most critical growth phase of their lives – the period from preschool to elementary school – will learn the basics of traffic safety step-by-step, gaining practical knowledge of the basics of traffic safety within a group education environment, such as nursery schools, kindergartens, and elementary schools. In terms of the educational content at each stage, AYATORII Chicks targets preschoolers aged four to five in a group education environment, such as a nursery school or kindergarten, and aims to provide them with the basics of traffic safety in a repeated manner, covering the topics "understanding sounds (sounds in the traffic environment)," "always stop," "always look," and "understanding traffic lights." When children reach the third or fourth year of elementary school, the program seeks to foster their ability to notice things by thinking for themselves. In particular, they consider traffic safety issues in the context of their daily lives, in relation to school, home, and their community. In addition, in order to ride a bicycle safely with a fun the program seeks to nurture an awareness of traffic safety among children aged four to twelve through practical sessions on bicycles, allowing them to have fun while they learn the basics about riding, stopping, and turning when on their bicycles (see Figure 9).



Figure 9. Examples of Traffic Safety Classes as Part of the AYATORII Program

Source: the Honda website (<http://www.honda.co.jp/safetyinfo/kyt/ayatorii/ayatorii1.html>)

(5) Production of teaching materials for use in traffic safety education at schools

The Metropolitan Police Department takes the lead in producing leaflets for use in traffic safety education for cyclists that targets junior high school students and above. In addition, it has had Kyowa Film produce educational videos for children the third year of elementary school, in order to teach them how to predict and avoid hazards in daily life (while walking, while playing, and while riding a bicycle).

(6) Production and distribution of a bicycle-focused traffic safety education movie targeting junior and senior high school students

The National Mutual Insurance Federation of Agricultural Cooperatives produces and distributes a free safety education DVD about cycling for junior and senior high school students. More specifically, the DVD increases the ability of students to predict and avoid the risk of accidents, enabling them to learn about bicycle accidents from the perspective

of people injured by them and those causing injury. It is intended that the DVD should be used in a wide range of situations, including classes and school events. Shinsei Movie also produces and sells traffic safety videos and DVDs.

3.5 Other Traffic Safety Education and Awareness Activities

This section introduces examples of traffic safety education and awareness activities outside the categories listed in the previous sections and those that do not target a specific age bracket or mode of transport.

(1) Nationwide traffic safety campaign

This is a traffic safety awareness campaign run nationwide at specific times of year (the campaign started in 1948, and the traffic task force was formed in the government in 1962). The campaign seeks to promote thorough efforts to prevent traffic accidents, by ensuring widespread awareness of the concept of traffic safety among the populace, encouraging good habits in terms of compliance with traffic rules and good traffic etiquette, and promoting citizen initiatives to improve the road traffic environment. As a general rule, the campaign runs in spring between April 6-15 and in fall between September 21-30, but the official dates are determined each year by the Traffic Safety Measures Headquarters.

(2) Japan Traffic Safety Education Association activities

The Japan Traffic Safety Education Association undertakes various activities aimed at promoting traffic safety education to foster safe traffic behavior, traffic safety education in partnership with local communities, and cultivating leaders in this field. These include training (e.g. workshops for traffic safety instructors and administrators, workshops for high school teachers, and workshops for driving school instructors), research (fact-finding surveys concerning traffic safety education in schools), dissemination of information (publication of the Traffic Safety Education monthly newsletter), and educational support (e.g. producing and distributing teaching materials for use in traffic safety education).

(3) Japan Traffic Safety Association activities

The Japan Traffic Safety Association carries out a wide range of activities in relation to all age brackets and modes of transport, including activities to nurture traffic safety instructors, activities to promote traffic safety education, community-wide bicycle-focused traffic safety education projects, and various surveys and research.

(4) Activities by traffic safety education organizations under the auspices of prefectural governments, municipalities, and prefectural police forces

There are many examples of organizations that carry out traffic safety education (such as traffic safety education centers and traffic safety education teams) under the auspices of prefectural governments, municipalities, and prefectural police forces. The activities undertaken by most of these organizations include traffic safety classes for preschoolers, schoolchildren, and seniors; classes in how to ride a bicycle safely; classes in how to ride a motorcycle or moped safely; initiatives to cultivate traffic safety instructors; and courses in the community or workplace aimed at creating safe drivers. Staff from these organizations are dispatched to kindergartens, schools, local authorities, company workshops, safety courses, and events as part of traffic safety campaigns, carrying out grassroots activities to promote traffic safety education. Such initiatives are sometimes undertaken in partnership with driving schools. Moreover, although they are not official bodies, there are also initiatives undertaken by traffic safety education organizations at motorsport circuits (see Figure 10).

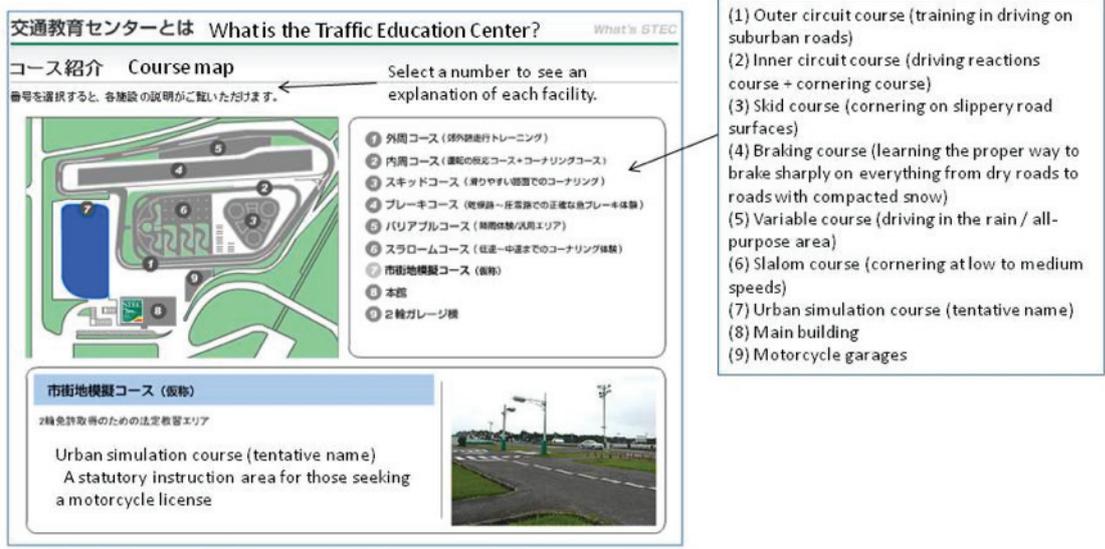


Figure 10. Introduction to the Training Course at Suzuka Circuit’s Traffic Safety Center
 (From the website of the Suzuka Circuit’s Traffic Safety Center (<http://www.suzukacircuit.jp/stec/>))

(5) The Safety Action 21 program of the Japan Automobile Manufacturers Association, Inc.

Organized by the Japan Automobile Manufacturers Association, Inc., the aim of this initiative was to create a traffic safety education program targeting young people aged between 16 and 18 (high school age), as there is a high accident rate in this age bracket. It features traffic safety education targeting seniors as well as high school students, with content including (1) the responsibility that comes with being a member of the traffic community; (2) awareness of the fact that a bicycle is a vehicle; (3) coexistence with vulnerable road users; (4) how to prevent bicycle collisions at intersections; (5) ways of preventing accidents involving four-wheeled vehicles; (6) how to prevent accidents while in a four-wheeled vehicle with others (such accidents are common among high school students); (7) training in predicting danger while cycling; (8) dealing with accidents that occur while cycling; (9) responsibility in the event that one causes injury or other harm; (10) an educational program aimed at developing good relationships between high school students as pedestrians, cyclists, and motorcyclists, and senior pedestrians (see Figure 11).

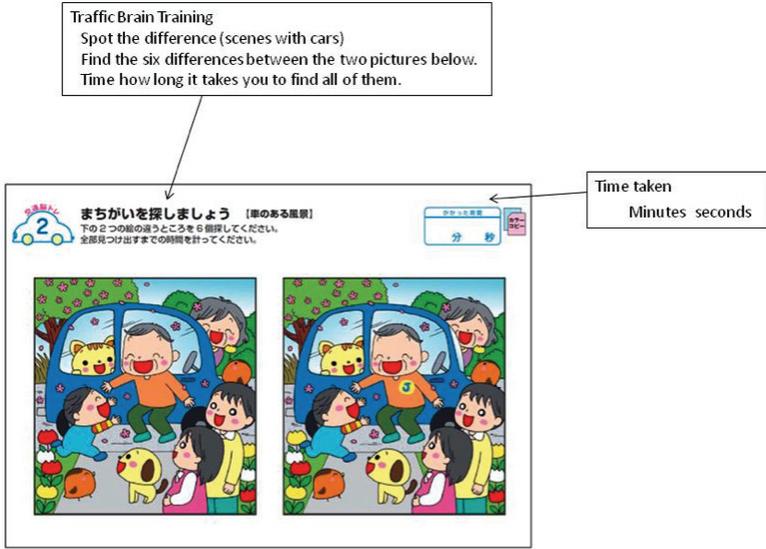


Figure 11. Example of a Traffic Safety Brain Training Question in the Safety Action 21 Program
 Source: the website of the Japan Automobile Manufacturers Association, Inc. (<http://www.jama.or.jp/safe/index.html>)

(6) Manual on traffic safety education using video drive recorders

In recent years, an increasing number of businesses have begun using video drive recorders in their vehicles to record accidents, but there are few examples of the use of the recorded footage in traffic safety education (An example of its utilization can be found at the website of a research group in the Society of Automotive Engineers of Japan (<https://www.jsae.or.jp/~dat1/katsudou/view?id=1505&year=2013> (in Japanese)). Accordingly, National Police Agency established a research committee (National Police Agency Research Committee on Effective Traffic Safety Education Using Video Drive Recorders) in FY2007 to conduct a study on this topic, as a result of which, a manual on the use of footage from such recorders in traffic safety education has been made available.

(7) Traffic safety education promotion pilot project

With the objective of translating the Traffic Safety Education Guidelines into reality and ensuring that they become firmly established in communities, the National Police Agency established Traffic Safety Education Promotion Councils in 100 locations nationwide, with members including representatives of local authorities, education professionals, and members of private sector groups. These councils carry out traffic safety education and awareness activities aimed at promoting effective traffic safety education tailored to the local situation, as well as cultivating traffic safety education instructors in the local community.

Okinawa Prefectural Police have produced a traffic safety education DVD that promotes the use of reflective gear and raises awareness of the risk of traffic accidents at night, in order to prevent nighttime traffic accidents involving pedestrians.

4 Conclusion

This paper has provided an introduction to the implementation status of traffic safety education and awareness activities in Japan, focusing primarily on examples of these. Traffic accidents occur as a result of unsafe acts by agents of traffic behavior in the form of pedestrians, cyclists, and/or drivers (in other words, people, one of the elements in traffic events), coupled with a defective, undesirable traffic environment. As such, traffic safety education in Japan focuses on those implemented from a perspective of education element of the "3 E's" of traffic safety in particular. Accordingly, such education targets all people who are involved in traffic events, broadly classifying them into two categories: pedestrians, cyclists, and drivers receiving traffic safety education directly, and those who are involved in promoting traffic safety education activities or providing traffic safety education/guidance. A variety of education methods are used to educate pedestrians, cyclists, and drivers receiving traffic safety education directly, depending on the age bracket and mode of transport targeted. Drivers are obliged to participate in education before obtaining a driving license or follow the training curriculum at a driving school, as well as attending legally-mandated courses when renewing their licenses. In the case of pedestrians and cyclists, prefectural governments, municipalities, and prefectural police forces organize various forms of traffic safety classes at elementary, junior high, and high schools, as well as holding traffic safety events. Those who are involved in promoting traffic safety education activities or providing traffic safety education receive education/guidance in conducting traffic safety education activities; this is conducted by a relevant staff member of the organization or department for which they work, and manuals compiled by the national government, prefectural government, or municipality are used as teaching materials. Today, given that traffic accidents arising from breaches of traffic rules and etiquette have become a social problem in recent years, improved traffic

etiquette via thorough traffic safety education would appear to have an important role to play. Accordingly, it is likely that traffic safety education and awareness activities that are better tailored to the needs of the age will be carried out intensively in future.

At the same time, although there are various examples of traffic safety education and awareness activities in Japan, and while there have been some evaluations of traffic safety education that have focused on specific techniques and modes of transport (such as Todoroki and Nishuchi [7] and Nakamura et. al. [8]), the fact remains that there are few examples of appraisals of traffic safety education as a framework in itself or of the measurement of its effect, due to the difficulty of the methods involved. Accordingly, assessing what sort of effect traffic safety education and awareness activities have had in terms of subsequent reductions in traffic accidents is a vital task in the implementation of traffic safety education and awareness activities that are tailored to contemporary needs in the future.

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Born in Kochi Prefecture in 1980, Hiroaki Nishiuchi graduated from the Department of Social Systems Engineering in the School of Engineering at Kochi University of Technology in 1999. He completed the doctoral program in civil engineering at the Graduate School of Engineering at the University of Tokyo in 2009 and later obtained his Ph.D. (Engineering) from the University of Tokyo. After teaching as an adjunct instructor and assistant professor in the College of Science and Technology at Nihon University, Nishiuchi assumed his current post in 2013. He is currently a member of the Japan Society of Civil Engineers, the Japan Society of Traffic Engineers, the City Planning Institute of Japan, and the Eastern Asia Society for Transportation Studies. Nishiuchi specializes in traffic engineering and transportation planning. Nishiuchi's main works include Exploring the History and Future of Road Traffic Safety Measures (Dokeiken Series A-127; coauthored with the Institute of Highway Economics), "The Effectiveness of 'Scared-Straight' Bicycle Safety Education for Middle-School Students" (Journal of Traffic Engineering, Vol. 49, No. 1, Japan Society of Traffic Engineers), "A Fundamental Study on Data Envelopment Analysis-based Connection Node Evaluation Using Public Transportation IC Card Data" (Journal of JSCE, Ser. D3, Vol. 69, No. 5, Japan Society of Civil Engineers), and "Spatial-Temporal Daily Frequent Trip Pattern of Public Transport Passengers Using Smart Card Data" (International Journal of Intelligent Transportation Systems Research, Vol. 11, No. 1, ITS Japan).