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Brisbane Australia

This is the author's version of a work that was submitted/accepted for publication in the following source:

Haworth, Narelle L., Greig, Kristi, & Wishart, Darren E. (2008) Moped and motor scooter licensing and training : current approaches and future challenges. In *2008 Australasian Road Safety Research, Policing and Education Conference*, 10-12 November 2008, Adelaide, South Australia.

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Moped and motor scooter licensing and training: Current approaches and future challenges

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Abstract

Unlike some European countries, there have been few motor scooters and mopeds on Australian roads and licensing and training of these riders has received little attention. However, recent increases in the sales of scooters (many of which are officially mopeds) have stimulated interest in how these vehicles can be best managed in Australia. This paper reviews local and international approaches to moped and motor scooter licensing and training, and seeks to assess their relevance to the current Australian situation. A number of challenges to developing a coherent licensing and training system are identified and discussed: lack of information regarding moped and motor scooter safety and about the safety outcomes of current licensing and training systems, the absence of official definitions of scooters worldwide, the significant growth in this market, whether different licensing and training requirements should apply to tourists, and the status of similar vehicles.

Keywords

Motor scooter, moped, rider licensing, rider training

Introduction

There are many wheeled vehicles which are termed scooters in different contexts. This paper discusses licensing and training for motor scooters (including mopeds) used on public roads for transport. The paper does not refer to mobility scooters which are used as power operated mobility aids, similar to a wheelchair, or to foot-propelled scooters that are commonly used by children. There is no official definition of a motor scooter in Australia and scooters are not easily identified in crash or registration databases. The Australian Bureau of Statistics [1] combines “two and three wheeled mopeds, scooters, motor tricycles and motorcycles with sidecars” within its definition of motorcycles. Thus, the ABS Motor Vehicle Census and the Survey of Motor Vehicle Use provide only general trends on new and total registrations and distance travelled, rather than providing information that is useful for examining issues related to scooters and mopeds. Unlike a scooter, Australia does have a definition for a moped. The Australian Design Rules state that a moped has an engine cylinder capacity not exceeding 50 ml and a speed not exceeding 50 km/h.

Style (or design) is commonly used to differentiate between a motorcycle and a scooter. A motorcycle has a step-over style where the rider must step over the vehicle to mount it. Most scooters have a step through-style. Most mopeds are of scooter design, but some mopeds are of motorcycle design (refer to Figure 1). Scooters with engine capacities of over 50 but less than 200 cc look similar to mopeds, but are officially motorcycles according to the Australian Design Rules (see Figure 2). There are some vehicles sold as scooters which are a hybrid between a step-over and step-through design (Figure 3), these are usually scooters with higher capacity engines.

There have traditionally been few motor scooters and mopeds on Australian roads and licensing and training of these riders has received little attention. However, sales figures published by the Federated Chamber of Automotive Industries show that scooter sales tripled in the three years to the end of 2006, and reached 14,505 in 2006, comprising approximately 12% of new motorcycle sales [2]. Mopeds comprised five of the ten best-selling on-road motorcycles in Australia in January to June 2006. In Victoria, 1,150 scooters were sold in 2005 (27% increase from 2004) and mopeds comprised 37% of all scooter sales. These recent increases in the sales of scooters (many of which are officially mopeds) have stimulated interest in how these vehicles can be best managed in Australia.



Figure 1: Mopeds – scooter style (step through) on left is most common but can be motorcycle-style (step over) as shown on right.



Figure 2: 125cc Motorcycle (step through style) – classified as a motorcycle by ADRs.



Figure 3: 500cc scooter (hybrid style) – classified as a motorcycle by ADRs.

One of the most important aims of licensing, training and testing systems is to improve safety. Recent work by the authors has reviewed available data on the safety of motor scooters and moped, and analysed crash data for mopeds and motorcycles in Queensland [3]. Both European and Australian research suggests that scooters are ridden more in urban areas and less on high speed roads than other styles of motorcycle. There is some evidence that scooters are ridden less distance per year but other evidence that they are ridden more often. This apparent contradiction may reflect more frequent, but shorter journeys. There is no comprehensive Australian data on the involvement of scooters in crashes. The Queensland moped crash data assembled by the authors shows very large increases in recent years and suggests that most crashes resulted in injury to the rider, and compared with all motorcycles, more occurred on roads with speed limits of 60 km/h or less and relatively more occurred on weekdays. Some self-report studies have presented data on the involvement of scooters in crashes, but most studies have suffered from the sample size being too small (there being very few scooters until recently). In some countries, the crash involvement of mopeds and scooters is greater than for motorcycles, largely because of the very high risks associated with moped licensing at a younger age. The European research suggests that moped and scooter crashes happen at lower speeds than many motorcycle crashes, but that many serious injuries still occur. There is little crash data available that allows the comparison of the crash risks associated with mopeds compared with other scooters.

The following characteristics have been identified as differing between scooters (including mopeds) and other motorcycles and have implications for both safety and the content of training programs:

- Gear changes/ handling clutch (most scooters are automatic and do not require this).
- Scooters often have linked braking systems, rather than independent front and rear brakes.
- Cornering/leaning on a scooter is done with the upper body rather than whole body and lower body for other motorcycles.
- Scooters generally have smaller wheels and are more susceptible to irregularities or perforations in the road surface.
- With smaller wheels there is less gyroscopic effect, making small wheeled scooters less stable at high speed.
- With smaller wheels there is less need to countersteer on a scooter.
- With smaller wheels there is less wheel surface contact with the road (less grip).
- There are limited braking capabilities on smaller scooters.
- There are limited suspension capabilities on smaller scooters
- The low top speed of some scooters may cause differential vehicle speeds in the road system.

Little research has been conducted on the skills needed for safe scooter riding. However the list above suggests that scooter riders may need relatively less skills in gear changing, use of front and rear brakes, and countersteering and relatively more skills in coping with the braking, suspension and stability limitations of the scooter.

Current approaches to moped and motor scooter training and licensing in Australia

As in most areas of training and licensing, the approaches to moped and motor scooter training and licensing vary across the Australian States and Territories. The most important difference is that a moped can be ridden on a car licence in Queensland, Western Australia, South Australia and the Northern Territory, while in the other jurisdictions, a motorcycle licence is required to ride a moped. In all jurisdictions, a motorcycle licence is required to ride a motor scooter which does not fall under the moped definition.

Victoria

In Victoria, a motorcycle licence is required to ride a scooter or moped. Riders tend to ride larger capacity scooters in Victoria than in jurisdictions where a moped can be ridden on a car licence.

The current Victorian system allows riders to obtain their motorcycle licence by passing the test on a scooter. Upon receipt of their licence the rider (including a rider who obtained the licence on a scooter) is permitted to ride a motorcycle. After 12 months of being on a licence (with restrictions) these riders are allowed to ride any type of motorcycle they wish. Some motorcycle trainers have expressed concern that riders who were trained and tested on an automatic scooter, may not have developed adequate gear changing skills to safely operate a manual motorcycle. The Victorian licensing system currently does not allow for automatic transmission conditions to be placed on a motorcycle licence, so in practice, riders who pass the licence test on an automatic scooter are allowed to ride manual motorcycle. The prevalence of riders being tested on scooters and then riding manual motorcycles is unknown, as is the crash risk associated with this practice. There are general findings of increased risk with riding an unfamiliar motorcycle [4] that support concerns of increased risk, at least in the short-term. These findings may also apply to other situations where riders are tested on motorcycles that differ markedly from what they will ride on the road.

Training providers stated that up to one third of riders undertake motorcycle training courses and licence tests on scooters. Some training providers have stated that they adapt their motorcycle training for scooters by deleting certain components (results of consultation with training providers). For example, clutch control and gear change components are not addressed fully during training with those students on an automatic scooter. However they must still pass all requirements of the test.

New South Wales

NSW is the only state that has what is effectively a scooter licence. In NSW, riders who complete the pre-learner course on an automatic motorcycle are restricted to riding an automatic motorcycle. If the automatic motorcycle has an engine capacity less than 125ml, they are not required to complete the pre-provisional course, but must pass the licence test (MOST). If the automatic motorcycle has a larger engine capacity, they must complete the pre-provisional course and pass the licence test. The automatic restriction is valid until an unrestricted licence is issued.

Western Australia

In Western Australia a rider can obtain a specific moped licence (R-N) at 16 years of age. This is one year sooner than a rider can obtain a motorcycle learner licence (R-E), (a minimum age of 17 years old). If a person already holds a drivers licence (other than a learner permit), they are also entitled to ride a moped.

Queensland

As noted earlier, only a car licence is currently required to operate a moped in Queensland. A motorcycle licence is required for a scooter that is not classified as a moped. However, at the time of writing, the Queensland Government was considering whether to require a motorcycle licence for operation of a moped [5].

Training is not mandatory for mopeds, scooters or motorcycles in Queensland. However, seven out of the eight training providers interviewed offer scooter training. All seven commented that this training is the same training that they offer for motorcycles, however, low engine capacity scooters are not taken onto high speed limit roads. Providers noted that consumers have little interest for scooter only training. One provider stated that they promoted moped training by advertising a low cost moped course. However, this provider stated that there was very little interest in this course.

South Australia, Northern Territory, Australian Capital Territory and Tasmania

As noted above, South Australia and the Northern Territory also allow a moped to be ridden on a car licence.

European approaches to moped and motor scooter training and licensing

In many European countries, different training and licensing approaches apply to mopeds compared to other motor scooters.

Most EU countries allow mopeds to be ridden on a car licence, some countries without any additional requirements such as a knowledge or practical test. Most countries allow mopeds to be ridden at age 16, some countries allowing mopeds to be ridden at 14 and 15 years of age. On the 1st of November 1998, new European Union classifications were introduced (class 1 and 2). Moped Class 1 (EU-Moped) has a cylinder volume of 50 cc and a top speed of 45 km/h. A normal car driver's licence or a special Moped Class 1 driver's licence is required for driving this vehicle. The Moped Class 2 (similar to the earlier category of Light Moped in some countries) has a cylinder volume of 50 cc, a maximum output of 1 kW and a top speed of 25 km/h. This moped is allowed to be driven by anyone older than 15. It is mandatory to wear a helmet when riding any class of moped [6].

Recent information about licence testing for mopeds in Europe is difficult to obtain. A survey by SWOV in 2003 [7] found that 13 out of 15 countries required moped riders to pass a theoretical test to obtain a licence and 9 out of 15 countries required a practical test to be passed as well. The requirements for a light moped licence were generally less stringent (4/6 had theoretical test and only 1 had practical test).

The licensing situation is somewhat different in Great Britain [8]. The term 'provisional licence' in Great Britain is more similar to learner permit or learner licence in other jurisdictions. The minimum age for holding a provisional moped licence is 16 years old. It entitles the rider to ride a moped on the road as a learner with L-plates (D-plates in Wales) but the rider must not carry a pillion passenger or go on a motorway. The provisional licence is only valid if the rider has a certificate issued on completion of compulsory basic training (CBT). A CBT certificate obtained on a moped is also valid for motorcycles once the rider has reached the age of 17 years and has the necessary licence. To obtain a full moped licence (Category P), the rider must be at least 16 years old and take and pass a theory and a moped practical test. Riders who obtained their full car licences before 1 February 2001 are automatically entitled to ride a moped without L-plates (D-plates in Wales). Riders who obtained a full car licence after 1 February 2001 must first complete a CBT course to validate their entitlement.

In Great Britain, a rider who passes a practical test on a motorcycle with an automatic transmission (most scooters) is restricted to riding automatics only. If the rider subsequently wishes to ride a manual motorcycle, they will be restricted to a motorcycle up to 125cc and must ride as a learner with L-plates. For larger machines, a rider at 20 years old can obtain a Category A Step II motorcycle licence without power restrictions if they have at least two years experience on a motorcycle (at Step I, discussed below). The Direct Access licence scheme allows people at 21 years of age to ride a motorcycle with no power restrictions without having acquired the two years of experience. To ride a manual motorcycle as a full licence holder, the rider must pass a further practical test (but not CBT or the theory test). The restrictions on automatics do not apply to automatic mopeds.

Many scooters in Europe are classed as Sub-category A1 "lightweight motorcycles" if they have an engine capacity not exceeding 125cc and power up to 11 kW. This sub-category has a lower minimum age requirement than the other categories. Some countries allow these motorcycles to be ridden with a minimum number of years of car licensing (e.g. Germany), while other countries have a higher minimum licensing age than proposed in the Directive. Category A Step I is a limited motorcycle licence for motorcycles up to 25kW and not exceeding 0.16kW/kg (160 kW/tonne) with a minimum age of 18 years. There is no Australian equivalent for the category A Step 1 licence type.

The original licensing systems in the European Union countries differed and the extent of progress towards the harmonised system has also differed among the countries. A review published in 2001 [9] noted that 13 of the then 14 EU countries had adopted the Category A Step I licence, with Britain choosing to retain a minimum age of 17 (rather than 18 as the Directive stated). The Category A Step II licence was implemented by all countries and the 'Direct Access' process was adopted by 13 of these 14 EU countries (with a minimum age of 25, rather than 21, for Denmark and Ireland).

Moped and scooter training in Europe

Those European jurisdictions which allow sub-category A1 motorcycles (many of which are scooters) to be ridden on a car licence have no training requirement in this situation.

In the Netherlands, a moped certificate was introduced on 1st July 1996 which required riders to pass a theory test. However, the theory test did not bring about adequate traffic skills. A study which judged the riding by young moped riders (average 16 years old) who had just recently passed their theory certificate (Goldenbeld & Houwing, 2001, cited in [10]) found that only 5% would have passed a real driving test. This led to an experimental evaluation of the effectiveness of a short practical driving course of 16 hours for young moped riders. Experts judged their driving skills at two moments. Immediately after the 16-hour training, still more than half of the participants were not capable of being safe road users (Schoon & Goldenbeld, 2003, cited in [10]). One year later, the average level of the various components of riding skills had remained almost stable, but certain specific aspects had declined (Goldenbeld *et al.*, 2002, cited in [10]).

United States approaches to moped and motor scooter training and licensing

Among US states that responded to a motorcycle licensing survey developed and distributed by the American Association of Motor Vehicle Administrators [11]:

- the majority require a motorcycle licence for a motorcycle over an engine size of 50 cc;
- approximately half of the jurisdictions responded that they do test moped operators, and of these most test on both knowledge and skills; and
- most jurisdictions restrict moped operators to the use of mopeds only, however, as many do not test moped operators, it was not applicable to all; and
- an equal number of jurisdictions have seen an increase in moped usage/registrations as those that have not seen an increase (many did not respond to this question).

Many States allow a moped to be ridden by an operator who has a car licence. If the operator does not have a car licence, then there is often a specific moped licence which has a lower minimum age than required for a car licence. Scooters that are not mopeds generally require a motorcycle licence.

In New York State, the licensing practices differ according to the top speed of the moped [12]. Class B (top speed 32 to 48 km/h) and Class C (top speed 32 km/h or less) mopeds can be ridden with any class of licence, subject to learner permit and junior licence restrictions. Class A mopeds (top speed 48 to 64 km/h) require a motorcycle licence. The registration plates for the three classes of moped differ. Class B and C mopeds are restricted to the right hand lane of the roadway (and the shoulder for Class B).

Scooter training in the United States

The US MSF (Motorcycle Safety Federation) [13] appears to have the only fully developed, scooter only training course. Eight motorcycle training schools across six US states offer a specific scooter course. *ScooterSchool 1* (SS1) is a four-hour course designed for entry-level scooter training and education. The course is based on the MSF *Basic RiderCourse* for novice motorcyclists and used the same principle of adult learning, motor skills development and safety risk management. The scooter course, however, is not designed as a licence waiver program. The fundamental skills for scooter operation and control are taught as well as safety considerations for operating a scooter legally on the street; the importance of a positive riding attitude; safety habits to reduce risk; and overall, acquire the basic knowledge and skills to be a safe, responsible scooter rider. The roadcraft component of the course covers a wide range of issues such as traffic negotiation, however, the course is conducted on pavement, in a controlled environment and not on-road. Two brief group discussion periods are conducted during training that are designed to help participants increase safety awareness, help identify their personal riding abilities and their scooter's capabilities, and provide guidance for developing riding strategies to manage risk.

Canadian approaches to moped and motor scooter training and licensing

Many motor scooters in Canada fall under the category of “limited-speed motorcycle” according to the Federal Motor Vehicle Safety Act (Canada). A limited-speed motorcycle:

1. can attain a rate of speed of more than 32 km/hr on level ground within a distance of 1.6 kilometres from a standing start;
2. has a maximum attainable speed of 70 km/h or less;
3. has steering handlebars that are completely constrained from rotating in relation to the axle of only one wheel in contact with the ground;
4. has a minimum seat height, when the vehicle is unladen, of 650 millimetres;
5. has a minimum wheel rim diameter of 250 millimetres and a minimum wheelbase of 1016 millimetres;
6. has a maximum engine displacement of 50 cubic centimetres or less; **or**, if the motorcycle was manufactured on, or after, September 1, 1988, it must have affixed a compliance label required under the Federal Motor Vehicle Safety Act (Canada) that identifies the motor vehicle as a limited-speed motorcycle.

Mopeds are termed “motor-assisted bicycle” in the Federal Motor Vehicle Safety Act (Canada). A motor-assisted bicycle is a bicycle that:

- is fitted with pedals that are operable at all times to propel the bicycle;
- weighs not more than 55 kilograms;
- has no hand or foot operated clutch or gearbox driven by the motor and transferring power to the driven wheel;
- has a piston displacement of not more than 50 cubic centimetres; and,
- does not attain a speed greater than 50 km/h on level ground within a distance of 2 km from a standing start.

Thus many vehicles that are classed as mopeds under the Australian Design Rules would be classified as Limited Speed Motorcycles in Canada.

In most provinces, operators of Limited Speed Motorcycles (LSMs) must be at least 16 years of age. In some provinces, riders who have another licence can ride a moped, without a special licence. Scooters that are not Limited Speed Motorcycles or mopeds require a motorcycle licence in most provinces. On 28 November 2005, a new licence was introduced in Ontario – the Restricted M (and M2) licence with L condition - that restricts the holder to operating a limited-speed motorcycle (LSM) and a motor-assisted bicycle (moped) [14]. In the past, mopeds could be ridden on a Class G (car) licence. Moped riders are issued the new “M licence with L condition” when they have successfully completed both road tests on their moped. The new licence allows them to operate mopeds and LSMs only. A grandfather clause was included in which riders who owned a moped that had a validated plate between 27 November 2002 and 28 November 2005 and held a valid driver’s licence at the same time automatically received the new M licence with L condition.

The M1 road test for riders wanting to ride a LSM is the same as the test for standard motorcycles, completed mainly in a parking lot. The applicant is required to complete a three-part motorcycle skill test by riding through sets of cones to test their skills in manoeuvring the vehicle. If the test is taken on a motor scooter or moped, then the licence will allow the rider to ride those vehicles only. If the test is taken on a motorcycle, the licence will allow the rider to ride a motorcycle, LSM or moped.

The M2 road test is the same as for standard motorcycles, but the freeway portion of the test has been omitted. The business section of the road test must be completed at the posted speed limit of 50 km/h. During the road test, the examiner provides directions through a disposable earphone. To upgrade to a licence to ride a full-speed motorcycle, the applicant must complete the M1 and M2 road tests on a full-speed motorcycle.

Ontario introduced a new numberplate (white on green background) for LSMs newly plated after 27 March 2006. Moped and motorcycle plates remained the same.

Scooter training in Canada

The Canada Safety Council has adapted its Gearing Up motorcycle skills course to suit motor scooter and moped riders. The Canada Safety Council [15] notes that in Ontario, licensing will be available on completion of the course. The course is described as follows:

The one and a half day course starts with three hours of classroom instruction. Practical hands-on coaching introduces basic skills such as balance and braking, then moves on to the more advanced riding techniques, including lane positioning and collision avoidance.

Relevance of international practice to Australia

An important issue for its relevance to Australia is how powered two-wheelers are categorised in terms of licensing and training requirements. Most countries are similar to Australia in their definition of a moped and their lack of definition of a scooter. Some jurisdictions divide mopeds into lower and higher speed or capacity sub-groups with lower licensing and testing requirements for the first group. In a range of jurisdictions, there are several categories of motorcycle for licensing purposes, and since most scooters fall into a lower-powered category, then the result is that they are subject to less stringent licensing requirements than other higher-powered or higher capacity motorcycles.

With increasing sales, it is important that there is an Australian definition of a scooter for the purposes of licensing, training and testing systems. While a system of categorising each powered two-wheeler as a scooter or not (by make and model) could result in an accurate classification, this is likely to be resource-intensive and in need of constant update. The preferred alternative may be to define a scooter as an automatic motorcycle (as is done in Britain and similar to the practice in New South Wales). This provides a simple categorisation which would assist in the identification of scooters for licensing, registration, enforcement and crash reporting purposes. The categorisation is also based on a characteristic which is relevant to the skills needed to operate the vehicle. It is consistent with the practice in some Australian states of different licensing practices for manual and automatic cars. This approach may “misclassify” some motorcycles as scooters (or vice versa), but its long history of use with cars suggests that it should be workable.

If considered necessary or desirable, it is potentially feasible to distinguish between traditional motorcycles and mopeds on the basis of ADR category. If these two categorisations were applied, powered two-wheelers would be divided into:

- Traditional manual motorcycles (engine capacity exceeding 50cc or top speed exceeding 50 km/h)
- Scooters (automatic transmission)
- Mopeds (engine capacity not exceeding 50cc and top speed not exceeding 50 km/h) – most of which would have automatic transmission and therefore, also be scooters

The choice of whether to define and/or treat the three categories of powered two-wheeler differently depends on the option chosen for licensing and training. With regard to enforcement and minimising misclassification of motorcycle category, it is also potentially feasible to distinguish between the categories through the use of different registration plates for each category type.

Given that mopeds and motorcycles are distinguished in the Australian Design Rules, this suggests that, from a practical point of view, it might be possible to have a licensing, training and testing system that distinguishes between mopeds and motorcycles. A system that made it easier to be licensed to ride a moped than either a motorcycle or a larger (non-moped) scooter would likely affect consumer behaviour in several ways. The first likely effect is that making it easier to obtain a moped licence might lead people who would not otherwise have purchased a scooter (and who are perhaps not interested in formal rider training), to purchase a moped. This assertion is supported by the greater sales of scooters (mostly mopeds) per head of population in Queensland, compared with Victoria. Thus, the total amount of

scooter (including moped) riding would increase. Given the greater vulnerability of riders of two-wheelers, this can be predicted to have road safety disbenefits. The second likely effect is that if riding of a moped was allowed on a car licence, many of the people who were considering purchasing a larger scooter might purchase a moped instead. The evidence from Queensland, which allows riding of a moped on a car licence, is that 84% of scooters sold are mopeds. In contrast, only 37% of scooters sold in Victoria are mopeds. There is currently no Australian data that compares the relative safety of mopeds and larger scooters, so the road safety implications of such a change in vehicle choice are unknown.

The licensing requirements for riding a moped potentially have implications for the effectiveness of car driver graduated licensing. If the minimum age for riding a moped was lower than the minimum age for obtaining a learner or probationary car licence, then young people may be attracted to moped riding. Potentially this could lead to reduced practice as a learner car driver because the moped provides them with an alternative means of mobility. While experience riding a powered two-wheeler has been shown in some studies to reduce the likelihood of a car driver failing to see a motorcyclist (by [16] but not [17]), it is considered unlikely that this road safety benefit would sufficiently compensate for the increases in crashes and injuries of young moped riders that would occur if moped licensing was allowed at a younger age.

One of the common objections to the introduction of a motorcycle licence requirement to ride a moped in states where it is not currently required is that most moped riding is by tourists and this would negatively impact tourism. While there are currently no figures available about the amount of moped riding by tourists, the crash data shows [3] that the fourfold increase in moped crashes from 2001 to 2005 was in riders who were licensed within Queensland, rather than in those licensed interstate or overseas. Thus, if the crash data provide any indication of patterns of use, the bulk of moped riding relates to “locals” and not “tourists”. More information is needed about the importance of tourism in moped riding and the risks associated with this activity.

While there have been traditionally few true mopeds (pedal plus motor cycles), new devices such as power-assisted bicycles and Segways are blurring the distinction between bicycles and motorcycles with consequent issues regarding where they should be able to be ridden, their registration and licensing systems etc [18]. Wigan also makes the point that the range of performance varies markedly among and between the groups.

“The range of powered two wheelers is very large, and the spectrum now extends beyond the light mopeds of the 1970/80s to powered foot propelled skateboards and scooters, through electrically assisted bicycles to mopeds, light scooters and onward to larger motorcycles of differing degrees of specialisation. Similarly bicycles and bicycle users have become more specialised, ranging from sedate occasional riders to specially dressed riders of advanced technology machines, and to electric and internal combustion-engined power-assisted bicycles” [19, p.3].

One of the issues for the future is what, if any, licensing, training and testing requirements should be applied to the expanding range of powered two wheelers and how can these policy decisions be made in a way that objectively balances health, safety and environmental objectives.

What should be included in scooter and moped training?

Surveys of scooter riders and indepth crash studies support the common observation that scooter riders are less likely to wear protective clothing than other motorcyclists. This suggests the need to develop an understanding of vulnerability and the need to use protective clothing in scooter training. Scooter training also needs to incorporate strategies for riding in a way to minimise the risk given that their top speed may be less than that of other vehicles including positioning on the road.

Conclusions

A number of challenges to developing a coherent system of licensing and training for motor scooters and mopeds in Australia were identified and discussed in this paper: lack of information regarding moped and motor scooter safety and about the safety outcomes of current licensing and training systems, the

absence of official definitions of scooters worldwide, the significant growth in this market, whether different licensing and training requirements should apply to tourists, and the status of similar vehicles.

In the absence of sound empirical Australian data regarding the relative safety of scooters and other motorcycles, it is difficult to make strong recommendations regarding changes to licensing and training practices for scooters. Using current data, it is not possible to compare the motorcycle crash experience of riders who have passed a test on a scooter versus a traditional motorcycle. Therefore, there is no crash-based evidence that being able to gain a motorcycle licence and ride a traditional motorcycle by passing the motorcycle practical tests on a scooter contributes to motorcycle crashes.

Scooter sales have increased and many in industry would like a scooter licensing and training system to be introduced that is less stringent than the current motorcycle licensing requirements. As noted above, the lack of Australian data regarding the relative safety of scooters and other motorcycles means that there is no current support for such a move on the grounds of safety.

Acknowledgements

This paper contains information compiled as part of a project commissioned and funded by VicRoads. Their assistance is acknowledged.

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