

Contribution of traffic legislation and enforcement to promote walking in OCDE countries

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Abstract

The pedestrian was until recently not considered as taking part in the traffic system. The introduction of pedestrian needs and safety is a quite new phenomenon. This paper wants to give recommendations to improve the safety through rules and the legal protection of the pedestrians. The fundamental principle that must guide this search is that *all road-users regardless of age, physical capacity and mode of transport have the right to travel safely.*

Pedestrians to try to join the traffic system, need to be taken into account and for that the traffic codes in general need to incorporate rules made to improve the safety and the comfort of walking. To reach this goal, it is worth doing a critical overview of the existing codes in each country. Rules enacted in the 60'S may not be up to date with the pedestrian's needs of today... For example, the term pedestrian is often not defined in a walking point of view but as a lake of vehicle what does not give any impulse to take his need into account. So with this critical overview, some definitions need sometimes to be added to the existing national traffic codes.

There is also a search for equity. Pedestrians are exposed to far greater risks than they create through their presence in public space for the others users. We also know from mobility data that pedestrians are significantly represented in urban area in terms of both absolute numbers and trip numbers. So this inequity may not longer stay if we want a increasing of walking trips in the coming years. This inequity can be balance through legislation. In the OCDE countries two solutions appear: the precautionary principle and financial protection in case of accidents.

As the national traffic codes are trying through the rules to avoid dangerous situations on the road for vehicles, then the same have to be implemented for the pedestrians as they are part of the road-users. It is than useful to look at the in depth analysis of pedestrian crashes and than enacting rules that may contribute to avoid dangerous situations and to develop standards or norms applying to street design also to improve the safety.

Enforcement, to improve the safety and comfort of pedestrian, has to focus on dangerous behaviours from vehicles as from pedestrians. For the vehicles, enforcement has to be focused on speed limit, on driving under influence and on respect of the pedestrian dedicated infrastructure. As there is no license to walk, the knowledge of the pedestrian may vary a lot, depending of culture, education or abilities. So for the pedestrians the educational process is fundamental.

Biography of the author

Isabelle JANSSENS is graduated of the Catholic University of Louvain-la-Neuve in geographical science (1998) and urban planning and land use (2000). She is working for the Belgian Institute for Road Safety, department mobility and infrastructure and has been implicated in the street code process that took place in Belgium (2003).

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Introduction

The content of this contribution had been elaborated in a working group¹ of the Joint Transport Research Centre of the OCDE and the International Transport Forum. The purpose of this working group was to give recommendations to authorities to promote walking.

This contribution has been based on a collect and review of the good practices in legislation and enforcement of traffic rules in OCDE countries.

The place of pedestrians in the traffic system and in the legislation

The pedestrian was until recently not considered as taking part in the traffic system. Actually, in the definitions of the road-users acted in the Vienna Convention on Road Traffic², in which where road-users received a definition, the pedestrian group was forgotten. The introduction of pedestrian needs and safety is a quite new phenomenon, and particularly in Occidental and European countries²

This paper wants to give recommendations to improve the safety through rules and the legal protection of the pedestrians. The fundamental principle that must guide this search is that *all road-users regardless of age, physical capacity and mode of transport have the right to travel safely.*

Need for a critical overview of the current national traffic rules

Regarding at what does already exist in OCDE countries legislation³, and that would be helpful to improve the place of the pedestrian in the public space and in the legislation, we notice that there is a general lack, with some exceptions, of definitions regarding pedestrians. Words like pedestrian, footpath or pedestrian crossing are often missing. Or when present, the definitions are not pedestrian oriented. For example, the term pedestrian is often not defined in a walking point of view but as a lack of vehicle.

Some examples of definitions:

- A pedestrian is defined as any person not in or upon a motor vehicle or other vehicle. (United States)
- A pedestrian is a road user who directly takes a place in the road traffic and that at the same time is not a driver, coachman, or person accompanying led or driven animals (...) (Czech Republic)

¹ Working group on Pedestrian Safety, Urban Space and Health

² Vienna convention on Road Traffic 1968. United Nations Economic and Social Council's Conference on Road Traffic.

³ OCDE, 2008a. Survey on Pedestrian mobility, pedestrian policies and best practices on OCDE countries. Working document. Working group on Pedestrian Safety, Urban Space and Health. Paris: Joint Transport Research Centre. OCDE & ITR

This kind of definition does not give any impulse to take the pedestrian needs and safety into account. Pedestrian oriented definitions may also be found in OCDE countries traffic legislations.

As pedestrians have to walk on allocated spaces it is important that these spaces are not shared with other users who are overly diverse to pedestrians. The legal definition of a pedestrian therefore, must be focused on safety on footpaths. Bicyclists and others users which may differ country from country can, in some cases, occupy the footpath, however, they must always allow enough space and not compromise the safety of pedestrians regardless of the pedestrian's physical capacity. The speed differential would also need to be taken into account and kept as low as possible, as other modes of travel can clearly expose pedestrians to risk.

In the future, with the ageing of the population, we can expect to see the appearance of new vehicles on footpaths, much like the Segway, which will give more independence to the elderly. Therefore there is a need to always consider the comfort and safety of pedestrians when allowing other or new users to share the pedestrian footpath.

Looking at this kind of examples, a critical overview of the current traffic rules could be really useful to clean or add rules and definitions specially made for pedestrian. This kind of approach was or is in process in some European countries. This process is called "Code de la rue" and applies particularly in urban areas.

A search for equity

Pedestrians are among the more vulnerable road-users. They are exposed to far more risks than they create through their presence in the public space, even in urban area where we know from mobility data that they are not a minority. This is not equitable. To balance this inequity, a review of practices in some OCDE countries highlights two solutions:

Precautionary principle applying to all road-users

All road-users have a responsibility towards the most vulnerable; a truck driver towards a car driver or cyclist, a cyclist towards a pedestrian or an adult to a child. Therefore all road users must take particular care not to cause any harm or expose to risk the most vulnerable of road users especially children, the elderly or disabled. This principle of responsibility could easily be integrated into national traffic code of the OCDE countries. This precautionary principle has been applied since the introduction of the Code de la rue in Belgium (2004) and France (2008) and is also foreseen in the Vienna Convention on Road Traffic:

- Drivers can not expose vulnerable road users, such as cyclists and pedestrians to danger, in particular children, the elderly or disabled. All drivers must be very careful when encountering these users or in public spaces particularly in built-up areas where their presence is anticipated. (article 7, Belgium)
- Drivers shall show extra care in relation to the most vulnerable road-users such as pedestrians and cyclists and in particular children, elderly persons and disabled. (Article 7.3 of the Vienna Convention on Road Traffic)

Financial protection in case of accidents

The risk posed by vulnerable road users is extremely low compared with the risk they are exposed to by vehicular traffic. Therefore, if a pedestrian is injured in a road accident, the pedestrian could be compensated for costs resulting from the crash. Such a law may increase the awareness of driver responsibility and risks associated with using a vehicle.

Some OCDE countries already include such a financial protection in case of accident involving a pedestrian.

- The "Loi Badinter" or Badinter Act introduced in France under the Civil Code on July 5, 1985, excludes liability from the indemnification process and provides an almost absolute obligation to indemnify non-driver victims of a road accident. .Therefore, in almost all cases, pedestrians are automatically compensated except where the cause of the accident was the inexcusable fault of the pedestrian. In such cases, compensation for the pedestrian can be limited or excluded.
- Since the mid 1980s liability in The Netherlands has been based on a reversed burden of proof. Children below the age of 14 are not liable at all, except in the case of gross negligence; this is also true for the handicapped and the elderly. In other cases there is a maximum of 50% liability. The reasoning is that driving a car increases the danger and risk posed to vulnerable road users.

Enacting rules to improve the comfort and safety of pedestrians

As the national traffic codes are trying through the rules to avoid dangerous situations on the road for vehicles, then the same have to be implemented for the pedestrians as they are part of the road-users. It is than useful to look at the in depth analysis of pedestrian crashes and then enacting rules that may contribute to avoid dangerous situations, and to develop standards or norms applying to street design.

Some traffic rules to help drivers avoid dangerous situations

In some situations, pedestrians can be put to risk by inappropriate actions of drivers. The traffic rules should highlight those situations and try to prevent them. Some typical pedestrian crash types (Brenac and Yerpez, 1997, Dupriez and Houdmont, 2009)⁴ ⁵ can be identified through in-depth analyses of crashes.

The main two types were detection and anticipation of a problem when a pedestrian leaves or enters the footpath. A third crash type was one involving pedestrians being on or walking along the street and, a fourth type involved situations where pedestrians were "collateral damage". Using these findings solutions involving the modification of traffic rules can be found to help prevent these crash types from occurring.

Avoiding pedestrians walking on the street

The footpath has to be accessible at any time and pedestrians should be able to stay on it for all their trips. Parked cars or obstacles on the footpath, however, oblige them to walk on the street. This is difficult for some pedestrians due to their age and their physical abilities; therefore the footpath has to be protected legally through the traffic rules against improper use, such as parking. The minimum width of 1.5 metres, which allows two pedestrians to walk side by side and for a person in a wheel chair to turn and go back, should be kept clear of all obstacles.

Protecting pedestrians walking legally on the road

Sometimes, in areas without traffic-calming, there is no footpath and no other place to walk except on the road. Although this situation should be avoided as far as possible, it must be dealt with in the traffic rules. The speed differential between users should be reduced so that when a pedestrian is encountered on the street, drivers should adapt their speed to keep a safe distance between the pedestrian and themselves. If this is not possible the vehicle should travel at walking speed.

⁴ Brenac, T., Yerpez, J., 1997. Accidents impliquant des piétons: scénarios types obtenus à partir d'analyses fines de cas. Proceedings of the Colloque Européen sur les usagers vulnérables dans la circulation, Vulnerabilis 1997, Lyon, 14-15 January

⁵ Dupriez,B., Houdmont,A., 2007. Accidents de piétons sur passage pour piéton non réglés par feux, analyses détaillées d'accidents (2000-2005) en Région de Bruxelles-Capitale. IBSR

Some traffic rules to help pedestrians to avoid dangerous situations

The pedestrian is also responsible for his own safety. Responsible pedestrian behaviours include being predictable when crossing the street, taking the shortest route, walking along predictable routes and crossing when signals permit. However, even when taking all precautions human error is inevitable and pedestrians like drivers, need a forgiving environment. One example of how a forgiving environment for pedestrians can be created is through the moderation vehicle speed.

Some examples found in the current legislations:

- If no zebra or controlled crossing pedestrian have to cross the street perpendicularly or by the shortest path
- If there is a pedestrian crossing, pedestrian should use it
- In darkness or at night a pedestrian have to pay attention to his visibility.
- On the crossing where they have priority on the traffic, pedestrian should ensure to be seen by the driver
- In cities where a there is a tramway, the tramway always have priority, even on pedestrian traffic.

Traffic rules specific to pedestrians crossing

Crossing is a very difficult part of the pedestrian trip. It must be performed by pedestrians of all ages and physical abilities. The difficulty associated with this part of the trip relates to the complexities which must be navigated in order to complete the act of crossing safely. These complexities involve the type of road, the presence of traffic lights, the length of the crossing, the presence of an island and the speed of the traffic. Pedestrian crash studies confirm the role of these variables (Dupriez and Houdmont, 2009). Therefore, what can be done in terms of legislation to improve this part of the trip?

In terms of the major type of pedestrian crashes (Brenac and Yerpez, 1997) four main issues have to be taken into account; the visibility and conspicuity of the pedestrian, the length of the crossing, the predictability of pedestrian behaviour on the crossing and of course, the moderation of vehicle travel speed. These four basic items can be integrated into the traffic rules or into the rules and standards applicable to street design:

- Ensure visibility of pedestrian wanting to cross.

Conspicuity is very important to the avoidance of accidents. Accident reports highlight the fact that, very often, the pedestrian was not seen by the driver. Consequently, legislation must be effective in increasing the visibility of road users. This can be brought about through traffic rules and street maker standards as presented below:

- Under the traffic rules:
 - It is forbidden to park less than 5 metres before a crossing.
 - It is forbidden to overtake immediately before a pedestrian crossing as the pedestrian can be concealed by a car stopping for him, and then being no longer visible by the overtaking driver.

- Drivers should approach a pedestrian crossing at a moderated speed of no more than 30 km/h in order to be able to stop suddenly if needed or to moderate the consequences of crash.
 - Under standards applying to street makers/owners:
 - Always provide a physical obstacle to avoid illegal parking at a certain distance before a crossing.
 - Always provide the shortest crossing distance.
 - Provide sufficient lighting for the crossing but not necessarily specific to the crossing. It is very important that sufficient lighting is provided for the crossing of the pedestrians but it is also important to avoid too big a contrast between the area of the crossing and the rest of the street, a pedestrian who crosses just a few metres from the legal crossing may not be seen by the driver. This is a common situation in urban areas and the road had to be forgiving for all.
 - Exercise prudence when installing publicity boards, bus stops, trees, café terraces in the proximity of a crossing, as these may obstruct the sight lines between pedestrians and approaching motorists.
- Minimise the crossing distance for pedestrians.
 - Under the traffic rules:
 - Introduce the continuous footpath in order to avoid pedestrians having to cross. (In this scenario, the footpath is continuous and the street is interrupted. It is called the "Crossing footway" and pedestrians have the right-of-way. The traditional pedestrian crossing as we know it would not exist.
 - Under standards applying to street makers/owners:
 - Pedestrian crossings without traffic light for pedestrians should be prohibited on streets with more than two lanes in both directions.
 - Always ensure the shortest crossing distance to limit exposure to risk and forbid the overtaking of cars in the proximity of a crossing.
- Predictability of pedestrians can be achieved by taking into account the needs and some demands of pedestrians.
 - Under the traffic rules:
 - Allow the pedestrian to finish their crossing even if they are not crossing on a pedestrian crossing.
 - Pedestrians are to have the right of way when using a pedestrian crossing or showing intention to use one⁶.

⁶ This rule needs to be preceded by an evaluation of the existing pedestrian crossings. The authorities have to be sure to give to pedestrian safe crossings.

- Under standards applying to street makers/owners:
 - Pedestrian crossings should be installed in locations convenient to pedestrians. Failure to do so may result in pedestrians crossing at higher risk locations.
 - Traffic lights have to be regulated in accordance with a walking speed appropriate to all pedestrians.
 - Changes to the traffic light priority system should be instigated without trepidation. We particularly think about the “all directions” green for the pedestrian to enable them to cross in diagonal. All the crossing can not be develop like this, but it is an interesting tool to flag in the traffic rules. The crossings of Oxford Circus (London) and Shibuya (Tokyo) are examples of this concept.
- Ensure the moderation of vehicular speed in the surroundings of a pedestrian crossing.
 - Under the traffic rules
 - Ask for a moderation of speed when approaching a crossing with no traffic lights.
 - Under standards applying to street makers/owners:
 - Ensure a moderated speed (30km/h) when approaching a pedestrian crossing.
 - If the moderation of speed is not possible then the crossing must be controlled with traffic lights.

Some special zones and considerations about speed

Many national traffic regulation codes already have moderated speed zones in place. If we look carefully, however, we can see that countries which have these regulations are not equal in terms of the design conditions applied by these statutes and also not equal in practice. In some countries such as Belgium, the Netherlands and Switzerland, 30 km/h zones are very easy to create within the sojourning areas. Only a gateway effect is needed to enhance the entrance. It cost less money and so more and larger slow zones can be done. We also see from experience from cities like Lorient (FR) and Zurich (CH) that large 30 km/h zones are better understood and respected than isolated ones.

How to optimise the realisation of these types of zones using the traffic rules

Some of these statutes, are difficult to sell to authorities especially the meeting and home zones which gives pedestrians the right of way. The speed of the vehicles must be very slow (20km/h to walk speed depending the countries) to offer optimal security to road users. There are often very strong rules regarding the number of cars allowed in such zones, however, examples from Switzerland⁷ and The Netherlands have shown that the success depends largely on the number of pedestrians and not on cars. Road safety for pedestrians and other vulnerable users tends to

⁷ Rue de l'avenir, 4/2005 Zones de rencontre, 3 ans d'expérience, Quel bilan ?

improve greatly. The design of such places with no footpaths coupled with narrow streets is comparable to many urban streets worldwide.

- Implement 30 km/h zones in all sojourning areas. This presumes that the road network has been re-classified prior to the speed limit change in the sojourning areas.
- Simplify the conditions to implement the slow zones.
 - The slow zone should be designed in such a way that is recognisable to drivers and the desired speed (30 km/h, 20 km/h, 15 km/); is achieved upon entrance to the zone must be recognisable. The zone can be evaluated after one year in operation and if needed be reshaped to correct defects (Switzerland).
- Zones that give the right of way to pedestrians should be possible regardless of the number of cars passing though the street. The pedestrian point of view has to be taken into account.

Enforcement to improve safety and comfort of walking

Education of pedestrians

The purpose is not doing enforcement for enforcement, but to imagine how enforcement can promote and improve the safety of walking. Enforcement is a tool and in order to be efficient, it is fundamental to identify safety objectives based on analysis of statistic of crashes and on in depth analysis of pedestrian crashes.

All enforcement plans have to include an educational part. This is particularly important for pedestrian enforcement. Actually, as there is no licence to walk, the information gained by the pedestrians can be varied, depending on his or her culture, education and surrounding; so a sole focusing on issuing infringement may not be effective. The educational part is therefore fundamental to really improve the safety. The approach involves primarily an educative process, where the pedestrian learns the rules and than if he fails to comply then sanctions must follow.

Education of officers

As the purpose here is to improve the safety, officers should be formed to identify the unsafe behaviours of road-users. This can be performed through the studies of statistical data or analysis of pedestrian crashes, that should enabled them to identity when, where, what and how they could enforce the law to improve the safety. The enforcement plan would then be targeted more towards safety. This approach is quite difficult to implement considering the target and constrains of the police, who primarily enforce the rules and sanctions. This approach would also allow knowing if some rules should be reviewed in a process like the "street code".

Enforcement targeting users

Enforcement targeting drivers

The unsafe behaviours coming from the drivers and exposing pedestrians (and others users as well) to high risks are well known (ETSC, 005)

- Speeding;
- Driving under influence of drugs or alcohol;
- Not respecting infrastructure dedicated to pedestrians.

Enforcement targeting pedestrians

As we already said, there is no license to walk so the educational process is for pedestrian, fundamental. Some common unsafe behaviour can be identified⁸:

- Crossing the street without taking the traffic into account;
- Not looking before crossing the street;
- Darting out between parked cars;
- Wearing dark clothes when there is poor lighting;
- Crossing while intoxicated;
- Not following the directions signals or crossing guards.

⁸ <http://walkinginfo.org>

Conclusions

Pedestrians are exposed to far more risks than they create through their presence in the public space; this inequity could be balanced through legislation. The precautionary principle and the financial protection could be effective.

It is a first importance to lead a critical overview of the existing national traffic codes to add or clean or rewrite rules that are not needed for safety or that would cause too much constraints to pedestrians (or other vulnerable users).

The traffic rules and rules applied by authorities should ensure visibility, predictability, shortest route to cross and a moderated speed when approaching a pedestrian crossing.

For enforcement of the pedestrian offenses, the educational process is fundamental. The sanction should be the last stage of the educational process.

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