

TRAFFIC PEDAGOGY AS A BASIC TOOL FOR PREVENTING ACCIDENTS

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Abstract: *The paper analyses the level and conditions of teaching all road users to achieve their competent involvement in the traffic environment in the framework of lifelong learning. The centre of attention is a systemic analysis of healthy traffic environment (i.e. without accidents) and coexistence of all those who participate in it. The article emphasizes the need for professional competence of all involved in the traffic environment; it also deals with education possibilities of people with special educational needs. The solution seems to be an establishment of a theoretical background of traffic training, which would be based - instead of empiricism and intuition - on a specific educational discipline - Traffic Pedagogy.*

Key words: *traffic environment, road traffic capacity, traffic educators, special educational needs, the education system, autoeducation.*

Traffic environment and traffic education

All actions and events take place in space and time. In principle, actions and events are influenced by nature and man. The result of their interaction can be simply described as our everyday life in all its forms and contexts.

Traffic environment cannot be restricted merely to the movement of motor vehicles on roads and pedestrians on adjacent pavements. The movement also takes place via wheelchair, bicycle, skateboard, skis, etc. We increasingly come across snow and water scooters and four-wheelers in the wild. It is therefore necessary to consider not only the roads, but also, for example, water, grass, forest, snow-covered or construction areas as traffic environment.

It is necessary to realize that apart from humans and nonliving cargo, also game moves, and this movement is not always in its natural environment. It is governed by natural laws; it does not have a possibility to accept human rules, and often suffers from lack of consideration.

The movement also takes place against the will of man, for example as a result of natural events, which have to be constantly considered and against which man is powerless: snow drifts, vehicles overturned due to winds, people and vehicles sliding on ice, rocks and branches on the road, tsunamis, etc.

The level of organization and the development of social laws that must honour the laws of nature correspond to the increased number of road users and speed of their movement. Disruption of the natural or social order brings chaos and destruction. Without educational and training processes it is impossible to ensure smooth involvement in the traffic environment.

We can classify the users of the traffic environment into three basic social roles or categories: *pedestrian*, *driver* and *passenger*. Each of these categories has many sub-categories or forms with a wide variety of differences. Capabilities and behaviour of individuals depend primarily on congenital and acquired physical disposition including the mental one, which is influenced by the environment in which they learn, live and work.

Although the factors considered only form basic elements of evaluation, it is obvious that in the traffic environment we encounter a diverse range of personalities. Based on availability and clarity of characteristics the users initially show, we expect their professional competence and appropriate behaviour. These expectations may be at odds with reality, which often leads to conflicts and traffic accidents.

Lifelong learning of all traffic environment users is therefore necessary; its quality and extent should be sufficient for the users not to endanger themselves and the others in dynamically varying environments.

In recent years courses of defensive driving have been taking place. The term *defensive* associates the notion of *defensive* behaviour, which in itself is insufficient for the safe use of the traffic environment. More suitable is *cooperative* conception, because it contains a human, environmental and economic concept. And the education of all traffic environment users, not only drivers, should go in this direction.

As an example, we can mention misconduct of passengers in the means of public transport. Although the same physical laws apply there as in cars, passengers do not use seatbelts and sometimes even do not feel any need to hold. The above example shows that trying to force people to obey the rules is very costly and little efficient.

History repeatedly shows that *compulsion to obedience* has only a small and short-term effectiveness. As highlighted by STŘELEČEK (in Střelec, S., ed. 2004), real success can be achieved only by professional, comprehensive and everyday *training of conscious discipline*.

Improving the system of the *traffic environment* is conditional upon the effective operation of the key *education* sub-system, the quality of which is influenced by meaningful and realistic objectives. Worth noting are the objective-setting methods, as reported by FILOVÁ (Švec, V., et al., 2003, p. 22-31). The accuracy of objectives and functionality of education aimed at achieving these objectives is verified by evaluation processes. To improve the *education* subsystem, it is also necessary to *supervise* the actual *evaluation*.

The term education has two fundamental concepts: professional and lay. Professional education (targeted, sophisticated and institutionalized) has its fixed rules and conditions. It is, however, necessary to take into account the effect of unqualified education, which significantly affects not only the users of the traffic environment, but also other factors of traffic conditions. This concerns inappropriate action of social, economic, cultural, political and other influences.

Undesirable education may contain not only the elements of incompetence and unconsciousness, but also intentional pathology. It is characterized by partial or entire non-acceptance of didactic principles. Education must be therefore accepted as the phenomenon having the nature of permanent “panhuman” action in time and space.

It can be therefore stated that the educational processes take place during the lifetime of the individual at several levels: **professional, lay**, but also in the form of **self-education**. A specific issue is the **re-education**, implemented by special pedagogical methods used for children, pupils and students, who have special educational needs or are exceptionally talented.

Professional education is based on didactic principles from the moment of its drafting; these principles must be met by the teacher throughout the whole educational and training process, and at the same time, all conditions to achieve clearly defined objectives must be created. How difficult a task this is even for a well-established school practice is pointed out, for example, by ŠIMONÍK (2005a).

Although the traffic training has always been given sufficient attention at schools, it has never been taught as a separate subject. This topic was implemented in other subjects (mathematics, physics, Czech language, etc.); traditional teaching methods have been upgraded and modified for the use of modern information technology.

Despite all the efforts and expertise of teachers, the teaching conceived in this way is little effective for two main reasons:

- Both teachers and students are focused on objectives and results of the given subject, not on the understanding of the context of the topic applied;
- Even perfect performance of teachers using the latest teaching techniques in a safe classroom environment remains a mere virtual reality, which does not develop a sense of threat and accountability in pupils.

A good proof of these statements is, for example, the inability of the majority of population to apply the knowledge of the laws of motion and reaction delays in real life. To achieve the desired objective, **activity - experiential learning** is necessary in real traffic environments. It is a known fact that one’s own experience brings about the most effective and long-term effect on an individual.

One of the main tasks of teachers is the pupil’s balanced strengthening of confidence and determination, while accepting a possibility of his or her own failure or failure of another road user. This leads primarily to the growing of ubiquitous caution which, in the next stage of an individual’s development, facilitates the education to a *partner* or (in other words) *cooperative* style of driving (Štikar, J.; Hoskovec, J.; Šmolíková, J. 2006; Konsbul, O., 2009).

As pointed out by STOJAN (2007), the traffic education even in the future may not be carried out in the required scope and quality in connection with the implementation of framework or school educational programmes.

Factors (subsystems) influencing the traffic environment (system) have a wealth of options which combine with each other. The resulting combination of the interaction of factors’ variations creates traffic conditions that correspond to the actual time and place of their operation (here and now). All road users and particularly drivers have to be permanently prepared to the effects of traffic conditions. The quality of the preparedness

is proportional to the dispositions and education of the users, complexity of evaluation processes and other measures to ensure road safety.

It can be stated that the elementary causes of road accidents include ignorance, misunderstanding or disregard of contexts at the level of road users and other direct and indirect users.

Persons with special educational needs form a special group of traffic environment users. As stated by POKORNÁ (2001, p. 73), it is totally undisputable that the phenomenon of specific learning disorders exists and sometimes significantly **adversely affects** educational and personal development of children, so it has an impact also on their **life orientation and adaptation in the society**. It has a varied aetiology of the **out-of-intellectual** nature, which - however - negatively influences also the development of cognitive and intellectual functions of individuals.

Specific learning disorders are closely related to specific disorders of behaviour (hyperkinetic disorders). POKORNÁ (2001, p. 129-131) states that the cause is not an improper leadership of children by their educators, but disorders in the emotional, motor or perceptual areas and insufficient development of cognitive functions.

In her latest monograph, POKORNÁ (2010, p. 11) - among other things - points out the fact that in recent years, even in our Czech environment an idea has been promoted that **it is necessary to work with adolescents and adults with developmental learning disorders**. Although in the past they had some opportunities where they could turn for advice - there have been some experts who have tried to help them, but so far, **no system of institutions has been introduced** that would be able to prepare a remedial psycho-educational programme to be available to all potential applicants, and some people working in this field do not have enough courage to deal with adult clients, because they do not feel sufficiently competent for this work.

Previous practice has not deal with the **inclusion** of people with specific learning disorders in intact population in adulthood. **About 9 % of Czech adult population suffers from learning disorders**, which represents more than three quarters of a million people (Pokorná, V., 2010, p. 32). Care provided to them in their preschool and school age suddenly stops, but in the majority of cases (80 %) their deficits and needs persist for the rest of their lives.

This fact poses a major problem for **ensuring road safety** because of the lack of professional pedagogical training with respect to driving instructors, examiners, instructors of courses for improving the competence of drivers and traffic education teachers at all school levels.

Driving instructors and instructors of courses for improving the competence of drivers teach heterogeneous groups of people in terms of biological, psychological and social aspects of each individual. In their practice they also come across individuals who fall into a large group of people (22.8 %) with below-average intelligence and marginal inferiority. It is caused by the fact that by law, only a minor group of truck and bus drivers is required by law to undergo psychological tests to determine their competence for driving motor vehicles.

Lifestyles constantly accelerate and stratify, which is especially evident in the transport sector. The dynamic development of the society brings the need for qualified education in all scientific fields and disciplines, and also in traffic pedagogy. Sir Ken

Robinson¹ in his lecture aptly criticizes the suppression of creativity in education and draws attention to the following paradox: For the society, academic achievements are synonymous with professional and social prestige; the teachers themselves and their science, however, are accepted much less.

Legislation governing the education of applicants for driving licence and improvement of professional competence of driving licence holders does not respect didactic principles and eliminates the mentioned creativeness of educational processes in its well-intentioned protectionism. Creative, individual and more challenging teaching is prevented by stereotypically defined rules, which are accepted by the educators themselves to their own detriment. This situation paradoxically enables unfair practices of some driving instructors, examiners and teachers of traffic education. The question is why this situation has been “frozen” for such a long time and why the protection of consumer rights of educators is inefficiently substituted by state officials, although the educators are competent persons who can exercise their rights themselves. Clients are missing evaluation criteria and availability of information as provided to other services rendered to consumer public.

The need for continuous education from an early age to old age is determined by lifelong participation of all individuals in a dynamically evolving traffic environment. Providing for such an extensive and important social need requires complementary solutions and a system-based approach coming from pedagogy. The question is why so far there have been no accredited study programmes or adequate didactic supports for the holistic education of traffic educators.

Current demands for a specialized pedagogical qualification of teachers and lecturers in the field of traffic education remain far from the standards of teachers of practical (formerly ancillary) schools. Training and education of future drivers and improvement of amateur and professional drivers can be delivered by persons without a professionally oriented pedagogical education, often with inadequate habits and attitudes.

As a result we encounter situations when traffic education at all levels of schools is delivered by teachers with proper pedagogical education, but at a lay level, because no appropriate teaching qualification for the subject exists; their knowledge and skills are affected by poor quality teaching at driving schools and by pathological traffic environment.

This in itself does not predict a low professional level of **all** traffic educators, but is in conflict with the demands on teachers in other fields, who ensure competency and safety of citizens.

Existing legislation and most driving school teachers underestimate the importance of the initial phase of practical training at driving training sites and of the sensory perception. Basic elements of vehicle control, such as starting, moving off, indicating, braking, changing gears and parking, are demanding complex tasks from the pedagogical and psychological point of view. The skill of the teacher is therefore so important to decompose a task, or possibly a thematic unit, to smaller, more easily manageable sections, which constitute one of the conditions of individual approach. In partial steps the teacher also realizes the psychological characteristics that are assumed for mastering the act (Zelinková, O., 2007, p. 43).

¹ [Quot. 6 March 2011]. Available at WWW <http://www.ted.com/talks/ken_robinson_says_schools_kill_creativity.html>

The success not only of the training, but also of the related theoretical, social and psychomotor development of the individual, depends on the mastering of the primary phase in an undisturbed and safe environment of the driving training area. This pillar of the smooth development of driving skills must be managed by both student and teacher in an atmosphere of mutual trust, tact and cooperation.

On the issue of diagnosing the level of perception, ZELINKOVÁ (2007, p. 68) states: “Perception belongs among cognitive processes. It mediates information about the external and internal environment. Primary perception processes the information coming to the brain from sensors (eye, ear). Relevant sensory cortical areas in the brain can be relatively precisely demarcated. Further processing takes place in broader cortical association areas, but still at the level of one sensory modality. The next step of processing sensory information takes place at the level of the connection of sensory modalities. This is followed by the limbic system, which gives sensory information an emotional accent (emotional life, motivation, long-term memory).

The science of sensory perception, sensory-motor coordination and related cognitive processes directly affects the quality of the conditioned reflexes associated with the performance of the driver.

Mastering the basic *sensory science* facilitates and accelerates further course of the training and creates an important prerequisite for the proper future development of habits and attitudes. Neglected science of sensory perception leads to the fixation of undesirable techniques of vehicle control and inappropriate attitudes to the matter, which are difficult to correct during the subsequent intervention. In this context, it should be also pointed out that driving simulators always provide virtual sensory stimuli, which - even at the highest quality - cannot substitute the actual conditions and experience. For this reason the importance and use of driving simulators should not be overestimated.

Acquisition and improvement of professional competence to drive motor vehicles is wholly handled by Ministry of Transport of the CR. Professional level in other fields is taken care of by the National Institute of Vocational Education (NUOV), which is directly controlled by the Ministry of Education, Youth and Sports; these two organizations together elaborate concepts for further development of professional education.

This dichotomy of educational concepts at the inter-sector level leads to significant discrepancies, e.g.:

- according to Act No. 563/2004 Sb. (Coll.) on teaching staff, driving instructors and examiners do not fall into the category of teaching staff, even though they carry out highly professional and socially significant educational activities, moreover, in dangerous conditions;
- act on the acquisition and improvement of professional competence to drive motor vehicles (Bušta, J; Kněžínek, J., 2008) does represent a comprehensive material, but without proper teacher training it does not provide real support to students, educators or evaluators;
- driving school textbooks and other aids are aimed at students and educational goals, but no didactic materials and training methodology for driving instructors are elaborated to instruct how to achieve these objectives;
- training of future driving instructors can be carried out by any driving instructor,

who has been a holder of a professional licence to perform professional teaching and/or training of applicants for a driving license for three years. This educator without teacher training and experience provides official training to future teachers (driving instructors), and these teachers without teacher training again prepare other driving instructors for their occupation in accordance with the regulation of Ministry of Transport of the CR;

- many applicants for driving licences and their holders focus only on correct marking of correct answers without understanding the context; this fact indicates weaknesses in teaching and implementing the principles of objectivity, reliability and validity of theoretical and practical examinations;
- from comparisons of the NUOV information, which - among other things - provides for a comparable level of professional education and market needs, it is obvious that the preparation for the profession of professional drivers from the point of view of the length and sophistication of the education system, professional level of educators and evaluators and of the social evaluation is strongly undervalued (Konsbul, O., 2009, p. 45n).

The issue of the impossibility of screening (early search for) individuals with obvious educational deficits already in driving schools is associated with business ethics and responsibilities, insufficient competence of driving instructors and non-existent organizational and legislative regulations. But if this tool of early prevention worked, it would significantly contribute to reducing accidents.

Returning driving licences

An important and - from the pedagogical point of view - unprofessionally approached problem is returning driving licences after their seizure. The only condition for returning the licence is a short training session in a driving school and testing by the examiner. It must be openly said that in the vast majority of cases, the above procedure is an ineffective formality particularly because of the following aspects:

Psychological testing and EEG, which is standard for professional drivers, are very exceptionally performed for drivers of passenger cars;

The driving instructor usually does not investigate the deficiencies for which the person's driving licence was seized, nor does he/she direct the education and training to their remedy. Any instructor's effort to do so cannot be sufficiently effective because he/she does not have specialized pedagogical and psychological knowledge and skills. He/she does not have anywhere to get them, nor does he/she have an opportunity to cooperate with a traffic psychologist.

Safe driving courses and courses to deduct penalty points

These courses represent an effective form of experiential learning, but it is questionable to what extent real improvement of knowledge and skills occurs; even a counterproductive effect cannot be excluded. The concept of these courses does not give sufficient space to building a healthy self-concept, correction of fear, anxiety or overes-

timation of the participants' own abilities. The exception is company periodic courses organized in educational modules.

One day (!) one-off courses for deducting penalty points from the driver's register have a character of re-education, i.e. **achieving redress** of drivers with inappropriate behaviour or with educational or skill deficits by using special training and education methods. However, the current concept and implementation of these courses cannot be considered an intervention leading to a real remedy.

These courses do not even offer training phases of modalities and their diagnostics, as described in the preceding text. In this context, it is necessary to emphasize that the prevention of skidding is enabled by visual perception and cognitive processes. In the first phase of managing the skid, tactile, kinaesthetic and vestibular perception is crucial. During the skid, auditory perception only has an additional meaning and enhances emotions.

The perception of 'body scheme' as described by ZELINKOVÁ (2007, p. 61–62) is closely related to the above issues: "The term body scheme (BS) in foreign literature appears much more frequently than in our country, usually in connection with learning disabilities, motor disorders, dyspraxia. ... KOTASOVÁ (ibid.) understands the concept of body scheme as an integration of the physiological level of movement realization with subjective emotional-cognitive experience. It enables the feeling of movement, i.e. the perception of the movement of the whole body and its parts in space and in handling tools and objects. Body scheme enables the completion of such movement nuances that cannot be comprehended rationally; their performance cannot be explained methodologically; they must be "sensed"."

These facts underline the need for change in the conception and implementation of courses for improving the professional competence of drivers and applicants for a licence. A major problem is the evaluation of these courses, because there are no evaluators with special pedagogical experience and teaching qualification for traffic pedagogy.

Efficiency of traffic-psychological examination

Traffic-psychological examinations play an important role in reducing road accidents. The necessary level of cognitive and mental dispositions of an individual is a key prerequisite for acquiring the competence to control the vehicle and to manage psychological stress.

Current legislation orders the preventive traffic-psychological examinations only in a minority group of drivers of lorries and buses. Virtually unaffected is the majority group of drivers of motorcycles and cars, which contributes to the overall accident rate by the highest number of traffic accidents. It can be therefore stated that the use of traffic-psychological examinations as a **preventive tool** to reduce traffic accidents is insufficient.

The situation is more complicated in the framework of **corrective** measures to restore the driver's competence to drive motor vehicles. After completing the psychological examination, the driver usually does not learn which areas the intervention should be focused on in terms of partial deficits or how to achieve redress, as it is common in special pedagogy. This key information is not revealed even to the driving instructor or teacher of the improvement course, who only deliver regular training or theoretical

instructions as part of the corrective procedure. The question is why psychologists proceed in this way. One possibility is that the examined individual and his/her educator would not be able to effectively evaluate such information. By this the role of traffic psychologist in the corrective process is exhausted, because he/she is not competent to complete the corrective procedure in terms of professional competence. The situation gets into a vicious circle, where the incriminated individual is sanctioned and partly diagnosed, but the subsequent intervention at the amateur level is inefficient and has only a formal character.

Ideally, in the context of traffic-psychological examination, further care should be provided by holistically equipped traffic educator in the following steps:

- case history;
- causal and systemic analysis;
- preparation and implementation of an individual educational plan.

Systems of acquiring and maintaining professional competence of road users and drivers

School education

As already mentioned, traffic education of road users does not take place in a coherent system of lifelong learning. Preschool and school education is covered by Ministry of Education, Youth and Sports of the CR by teachers without professional specialization in the field, who - in the framework of non-systemically designed teaching - use partial didactic materials and teaching aids, such as traffic playgrounds, teaching materials and computer programmes for grade I and grade II of primary schools. There is no didactic support for children, pupils and students with special educational needs and their teachers. Although the ability not to endanger oneself or others in daily involvement in the traffic environment is one of the key competencies of each person, up to now this topic has been dealt with rather ineffectively by theories and administrative measures.

After-school education

A similar situation also exists in the sphere of after-school traffic education, i.e. in the traffic training and education of adolescents and adults provided by the Ministry of Transport. Here we turn our attention to the recommendation of lawyers, traffic police, health professionals, traffic psychologists and other traffic experts, but previous efforts to provide effective remedy without the involvement of pedagogy are little effective.

In this respect special pedagogy is exemplary; by its sophisticated methods and means, it meets the needs of minority population in an effective and holistic manner, with the exception of their education for safe involvement in the traffic environment.

Conclusion

Traffic environment in which we meet every day is an extensive system. For its optimum functionality, complementarity and harmony of its individual components is needed. Education can be undoubtedly considered as one of its key subsystems.

Safe lifelong involvement in the traffic environment is subject to professional competence of all who meet in it and in this respect are interdependent. In the future the professional competence of road users cannot be ensured by existing methods and measures that are not based on pedagogy. They have proven to be little effective and in many cases economically inefficient.

Within the meaning of the above facts, the following framework measures have been recommended:

- Coordinate the educational system of the Ministry of Transport with the system of the Ministry of Education, Youth and Sports;
- Encourage and satisfy the demand for professional training for the whole area of traffic education by constituting a pedagogic sub-discipline of traffic education;
- Enhance the level of teaching competence of driving instructors and lecturers of driving courses in the form of a bachelor's degree programme;
- Arouse the social demand for quality traffic education (including the needs of people with specific disorders and deficits) and create a system of their professional evaluation and publication of results.

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DOPRAVNÍ PEDAGOGIKA JAKO ZÁKLADNÍ NÁSTROJ PREVENCE NEHOD

Abstrakt: Příspěvek analyzuje úroveň a podmínky výchovy všech účastníků ke způsobilé účasti v dopravním prostředí v rámci celoživotního vzdělávání. Centrem problematiky je systémová analýza zdravého (ve smyslu beznehodového) dopravního prostředí a koexistence všech subjektů, kteří se na něm podílejí. Příspěvek zdůrazňuje nutnost odborné způsobilosti všech zúčastně-ných v dopravním prostředí, také se zabývá možnostmi edukace osob se speciálními vzdělávacími potřebami. Řešením se jeví vytvoření teoretického zázemí dopravní výchovy, která by pramenila namísto empirie a intuice, ze specifické pedagogické disciplíny – dopravní pedagogiky.

Klíčová slova: dopravní prostředí, účastníci silničního provozu, způsobilost, dopravní edukátoři, speciální vzdělávací potřeby, vzdělávací systém, autoedukace