Research criteria for assessing the training of drivers of vehicles

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Abstract. The analysis of the training drivers’ system on the example of several countries of the world is presented in this article. The main problems in the instructors training for teaching activities are indicated, the shortcomings in the teaching methods are noted. To date, a large number of road traffic accidents involving drivers, with a small length of service has been noted. To solve this problem, a comparative analysis was made of the requirements for training in driving schools in different countries. The ways to improve the professional and pedagogical activities of instructors are proposed and described. Recommendations for improving driver training in Russia are proposed. They are aimed at improving the quality of education in driving schools in Russia and improving road safety.

Introduction
The fact of the road transport accidents in Russia remains a pressing problem. People are killed and injured every day on the roads of the country. Russia occupies one of the first places in the number of road traffic accidents (RTA) among other countries. Accident rates are reduced by bringing measures aiming at improving road safety, for example, the introduction of fines for traffic code (TC), etc.

The State Traffic Safety Inspectorate (Traffic Safety Inspectorate) identified the dynamics of road accidents from January to February 2019. In the past 20 thousand accidents more than 2 thousand people lost their lives, which is 5.5% less than the same period last year, more than 27.5 thousand people were injured. The latter figure showed an increase of 0.3% for the first time in a long period.

The majority of traffic accidents happens due to the drivers’ fault. From January to February 2019, 18 thousand traffic accidents were recorded caused by the drivers. More than 15 thousand accidents happened because of the car drivers.

Main part
One of the factors reducing the severity of the accident consequences is the vehicle. When purchasing a vehicle, it is necessary to take into account the vehicle’s safety, the combination of the constructive and operational properties aimed at preserving the human health. And also, whether the vehicle is sufficiently equipped with the elements of passive safety.
Despite the vehicle’s safety, the driver plays an important role. Quite a large number of accidents happen due to the drivers’ fault (insufficient driving experience). One of the reasons is the low level of training associated with an insufficient number of hours of practical training. Driving training is serious and cannot be neglected. In order to achieve the greatest road safety in Russia, the question of training candidates for drivers and their admission to the management of the vehicle is urgent.

The instructors having a minimum driving experience of 5 years often work in driving schools in Russia. To read the theoretical course, the teacher must possess significant experience in teaching or working in the traffic police. Employees of the road inspectorate can also be invited to the classes to clarify some points and test knowledge. Classes are held 3-4 times a week. Training takes about 3 months. On average, it is 120-140 hours, 100 of which is usually devoted to theory.

Classes in a driving school are divided into 2 courses: theoretical and practical. The theoretical part involves the study of:

- traffic codes;
- measures for the Administrative Code violations;
- safety rules while driving;
- first aid in case of accident or injury;
- general car device.

In the practical part the circuit is mastered first. Here the driving practice, namely, “feel” the dimensions of the car, the steering response, the gas and brake pedals, as well as the acquisition of the first driving skills are taught.
After the race track the training continues on the city roads. At this stage the student has the opportunity to acquire professional skills, namely, learn how to analyze the road situations and be able to make forecasts. Also feel the road and grip of tires with its surface at different temperatures and weather conditions. As soon as the student has completed the entire course of study, he will pass an internal exam, and then an exam at the traffic police.

The professional driver skill is a combination of professional intelligence and technical skills of driving. The skill of management can also be assessed by the parameters characterizing the driver's qualities: the accuracy of working out individual operations for driving, speed and driver’s reliability. The accuracy of testing is determined by the degree of approximation of the real movement parameters (the trajectory of movement, speed, distance between cars) to the given ones. The analysis of the driver’s work in addition to the quantitative calculation of violations and failures in driving, should include a qualitative analysis of natural errors, importance, time distribution and the degree of influence on the final result of the driver’s activities.

Also, on the lack of driving training is affected by the instructor’s qualification. According to the new professional standard of October 28, 2018 “Master of industrial training in driving vehicles of relevant categories and subcategories”, the following requirements are imposed on instructors: a driving instructor must have a driver's license and instructor certificate for the category of vehicle he plans to conduct training; the presence of secondary vocational education (if it is by profile, there is no need to study further, and if not, it is necessary to obtain the additional professional education); the absence of restrictions on teaching and medical contraindications; passing certification for compliance with the position; labor protection instruction; driving experience must be at least 3 years; lack of deprivation of rights for 5 years.

It is also recommended to undergo special training programs once every 3 years. Often this is not enough for the high-quality driver training.
In the UK, in order to obtain qualifications, it is necessary to pass the state exams and only after passing them successfully it is possible to become a driving instructor. In order to pass these tests, the applicant must attend training courses at any of the schools for the preparation of driving instructors. These courses are designed from the initial level, and some even include other modules that help with the management of future business. Training usually takes 6-18 months. To complete this course, the future instructor must be over 21 years old and have a driver's license with an experience of 3.5 years.

The demand for driving instructors in the UK is constantly growing as the population grows, and most people are ready to drive their own car, and with the recent introduction of testing for the older drivers, the need for competent instructors has increased.

Foreign countries with a high level of automobilization have fewer accidents than in Russia. In the European Union countries, in particular Germany, to take exams for the right to drive a vehicle, a driver's license confirming the right to drive a vehicle of categories “C1”, “C”, “D1” and “D” are awarded only to those drivers who have the right to drive a vehicle category “B”. The admission to driving motorcycles of the category “A” can be allowed only if there is a two-year experience of driving motorcycles with a driver's license confirming the right to drive a motor vehicle with a smaller engine size.

According to the requirements of the Directive, the candidate driver must have the knowledge, skills and ability to demonstrate the behavior on the roads necessary to control the vehicle. To test this knowledge, the exams were introduced on theory and then on driving practice. The candidates for drivers of the vehicle are checked for the ability to correctly prepare the vehicle for the traffic, the performance of certain maneuvers and behavior in real traffic conditions.

The content of the theoretical exam should include questions on all items listed in the Directive. Their analysis has shown that a sufficiently large number of items that are necessarily checked abroad are absent in the examination questions in the Russian Federation. In addition to the main topics related to the road signs, signals, traffic rules and speed limits, there should be questions about the importance of the driver’s care and his attitude to the other road users. With regard to the other road users, the knowledge of the special risk factors associated with the lack of driving experience of other road users and the most vulnerable categories of these participants, such as children, pedestrians, cyclists and people with disabilities, about the risks related to traffic and control is checked as well as the different types of vehicles and different zones of visibility of their drivers.

In Germany it is necessary to obtain a certificate of training in a driving school for the possibility of being assigned for exams, however, in a number of Scandinavian countries self-training is provided. Training of persons wishing to obtain a driver's license for the right to drive a vehicle is carried out in accordance with the law on the instructors teaching driving a vehicle. Driving instruction is conducted in private and public driving schools, in accordance with the decree on the preparation of applicants for obtaining a certificate of the vehicle's ownership.

The discovery of categories is carried out in stages, in case of two-wheeled vehicles, the category with the smallest engine size is initially opened, and for a higher category it is necessary to achieve a certain age and have driving experience (except for a person over 24 years old). The “grading” of these categories consists in learning the basic management program of the vehicle and the possibility of obtaining the right to manage only category “B” first. Without this, obtaining, for example, the category “C1” or “D1” license will not work, except for the special vocational training for 3 years on the basis of the bus fleet. In addition to having a driver's license, the right to drive a car requires a letter of driving experience, i.e. a document issued by an insurance company (as in Germany insurance is not connected with a car, as in Russia, but to a specific driver and it does not make sense to insure yourself against an accident if the car owner does not drive the car).

The practical part of the exam is passed on dead-end roads, in supermarket parking lots, vacant lots and other places with minimal traffic. To obtain a positive assessment on the exam, it is necessary to perform mandatory exercises and movement without violating traffic rules during the entire allotted time. Errors or ignorance to answering to the questions on technical systems of the vehicle does not entail a negative assessment on the exam, but affects the subjective opinion of the examiner about the
When checking a candidate driver, the self-management of the vehicle draws attention not only to the observance of traffic rules and the ability to perform certain exercises, but also to the skills of anticipating possible hazards during movement, their prevention and actions when they occur.

Taking into account the experience of other European countries, the practical exam also takes place in the conditions of ordinary road traffic along various routes. The examiner informs the examinee about the next route part gradually as they proceed. In the Netherlands an area is defined for the test route. In other countries the route is chosen in different ways. Belgium, Great Britain, Hungary, Ireland, Latvia, Lithuania, Norway, Switzerland, Portugal are the countries with the fixed examination routes. Each examination center has a number of predetermined standard routes one of which is selected immediately before the exam. In Lithuania and Norway, the route is chosen by the computer. In Great Britain, Ireland, Hungary the choice is made by the examiner from among the approved routes. In Norway each examination center establishes at least 6 routes for itself. One route per year is regularly replaced.

Analyzing the quality of driver training in different countries, both advantages and disadvantages in teaching methods were identified, which are presented in Table 1.

**Table 1.** Comparative analysis of training requirements in driving schools of different countries

| Requirement                                      | Russia                        | Germany          | USA               |
|--------------------------------------------------|-------------------------------|------------------|-------------------|
| Average duration of training category “B”        | 130h. (100h. theory, 30h. practice) | 40-50h           | 34h.- module 1    |
|                                                   |                               | 6h.- module 2    |                   |
| The student’s age                                | 18                            | 18               | 14                |
| Self-training                                    | Not provided                  | Not provided     | Under the parents’ control |
| Exam                                             | Circuit, urban                | urban            | urban             |
| Requirements for instructors                     | 1. Teacher of higher (secondary) technical education | Permission to study | Parents (guardians) |
|                                                   | 2. Instructor - no lower than secondary education |                   |                   |
| Number of driving schools                        | 11.5 thousand                 | 10 thousand      | Minimum, because learning is mostly done by parents |
| Average tuition fee                              | 22 500 rub                    | 1080-2000 euro   | Classes with an instructor: 1h. - 55 dollar; 10h - 499 dollar |

In almost all the European countries the examiners use the officially accepted criteria for evaluating the actions and behavior of driver candidates. Only in the Netherlands and Finland the aspects the examiner should pay attention are determined in general terms. In Croatia it is required that the candidate driver fulfills all tasks carefully, without endangering himself and others, without disrupting the usual traffic stream.

In the Czech Republic a candidate for drivers must show how safely he can manage a vehicle in any situation. Any mistake during the exam, leading to the creation of a dangerous situation or the need for intervention by the examiner, leads to the fact that the exam will be recognized as “not passed”.

In Sweden also in case of any error requiring the intervention of the examiner, the candidate driver receives a grade “not passed”.

5
In Portugal it is taken into account how skillfully the candidate driver performs various tasks, what measures he takes to ensure traffic safety, and whether he observes the traffic codes. If the examinee could not properly park the vehicle in three attempts, or was unable to start off on the rise in three attempts, the exam is not accepted.

Summary
Based on the analysis, it can be concluded that the driver training systems in Russia and Germany are approximately the same. In the USA they teach from an early age, therefore, at the time of passing the exam and leaving the driver in real urban conditions, the driving experience is much higher. The percentage of such drivers in an accident is significantly reduced. In Russia and Germany, the practical classes are held in urban environments with a high intensity of vehicle traffic, in the USA the situation is opposite.

To improve the level of training of the Russian drivers, the following recommendations should be taken into consideration:
1) to make changes in the curriculum, namely, to increase the hours of practical training;
2) to pay more attention to the medical examination of future drivers;
3) to introduce testing before entering a driving school on the subject of psychological stability;
4) to improve the level of the instructors’ professional training.

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Acknowledgements
The work is realized in the framework of the Program of flagship university development on the base of the Belgorod State Technological University named after V.G. Shukhov, using equipment of High Technology Center at BSTU named after V.G. Shukhov.