

Education and Knowledge Improvement of Employees in Driving Schools in the Republic of Serbia

D. Milosavljev*, J. Stojanov*, A. Grban**, M. Kavalić*

* Technical Faculty „Mihajlo Pupin“, Zrenjanin, Republic of Serbia

** SPI Zrenjanin, PU Zrenjanin, Republic of Serbia

milosavljevd@yahoo.com, stojanov.jelena@gmail.com, aleksandra.grban@gmail.com,
milazakin@gmail.com

Abstract: Traffic safety largely depends on the previous training that the driver has received. In the Republic of Serbia, formal training in driving schools is mandatory. The quality of training depends on the knowledge, experience and skills of the employees (instructors) who work in driving schools, and how effectively they transfer knowledge to their candidates/learners. This paper presents a research that shows the importance of education, knowledge, skill, and improvement of knowledge of employees in driving schools for the overall quality of training. This research included 74 respondents (N=74) of different expertise, as well as different demographic categories. The results of the research indicated that there is a statistically significant correlation between the analyzed dimensions: Importance of acquired knowledge during education; Importance of seminars and tests for knowledge improvement; Importance of independent learning on knowledge improvement; Importance of practical exams; Importance of knowledge and its improvement for quality training) and control variables (gender, age and education).

I INTRODUCTION

The modern society is characterized by constant changes, which has led to the need for constant improvement of knowledge. In such a turbulent environment, knowledge is a key resource for successfully conducting business. Knowledge needs to be effectively managed and needs to be constantly improved. As in all areas of business, so in the field of traffic safety, knowledge plays a key role. Namely, in order to increase traffic safety, it is necessary to start from the beginning - driving schools. Given the fact that young drivers fall in the high-risk group of drivers, and are most likely to cause a traffic accident, it is necessary to bring training in driving schools to the highest possible quality. Hence, there is a necessity for improving education and knowledge of driving school employees. According to the Law on Traffic Safety in the Republic of Serbia, all employees in driving schools (lecturers of theoretical training, driving instructors and examiners of theoretical and practical exams) must have a license. The license is

acquired through theoretical training that covers areas related specifically to an expertise of one or more of the exams that are conducted in driving schools. These licenses last for five years and during those five years the license holders are required to attend knowledge improvement seminars. After the license expires, the employees in the driving schools have to renew it by taking the exam again.

In this paper the correlation between the observed variables is analyzed. These dimensions are in the domain of knowledge improvement in driving schools and the improvement of overall training quality in driving schools. The paper includes three main sections (excluding the Introduction and Conclusion sections). The first section provides a theoretical framework of the research and discusses the importance of knowledge improvement in driving schools, and overall traffic safety. The second section includes the research methodology where the sample and hypotheses are presented. Afterwards, in the third section, the research results are presented and discussed in more detail. Based on the obtained results, conclusions are drawn.

II THEORETICAL FRAMEWORK OF THE RESEARCH

A. *Knowledge - the most important resource of modern business*

Conducting business in the modern business environment and within the framework of Industry 4.0 is marked by technological changes, which represent the most dynamic factor of development. Industry 4.0 has also created new challenges in the domain of education [1]. Industry 4.0 provides unlimited opportunities for multiple learning processes at all times, enabling each individual to acquire knowledge and skills throughout their lives [2]. The concept of knowledge refers to the product

of cognition of reality, which has been tested in practice and faithfully copied to human opinion [3], and through the use of knowledge organizations gain their competitive advantage. The most common division of knowledge is made between knowledge that is based on information (explicit knowledge) and knowledge based on experience (tacit knowledge) [4]; [5];[6]. Knowledge is the most important strategic resource, and learning is the most important ability of an enterprise, for that reason knowledge needs to be managed properly. Knowledge management can be presented as the ability to identify, store, and retrieve knowledge [7]. The activities within knowledge management should contribute to the increase of consumer satisfaction, increase of profits, cost reduction, increase of employee productivity, increase of innovative skills, organizational stability, and embracement of market changes [8]. Further, inadequate knowledge management can lead to organizational errors that can cause problems in the domain of worker departure and retention. If these workers possess strategic and professional knowledge, the organization can experience great financial and productivity losses [9]. Due to these conditions, the concepts of learning organization and organizational learning begin to have a crucial role on achieving competitiveness. The concept of organizational learning represents learning as a process of critical importance for the survival and success of the organization [10]. This concept supports and generates major changes in the enterprise. The main feature of organizational learning is the development of new knowledge. From here, this new knowledge has the potential to improve existing routines and processes, both on an individual level and on a collective level of the organization.

B. Traffic safety and driving schools

The development of motor traffic has brought great changes not only in traffic, but also in human life itself [11]. One of the wider social problems is the issue of traffic safety. Factors that affect traffic safety can be categorized into human factors, road factors, and vehicle factors [12]; [13]. Measures to increase traffic safety could be divided into two groups [14];[15]:

- technical measures - direct measures such as measures related to the development of road infrastructure, vehicle design, traffic laws and their application, medical services, and insurance premiums;
 - institutional measures - measures that indirectly act to improve traffic safety such as research and development in the domain of traffic safety, improving the quality of training of future drivers, and education and training of staff involved in the training of future drivers.
- Driving has become an instrumental activity of everyday life. However, it can be very dangerous, as even the smallest mistake can lead to traffic accidents. This is especially the case with young drivers (novice drivers) as they fall into the high-risk group. Research has shown that the main reason for causing traffic accidents by young drivers is insecurity, but also reckless driving, alcohol consumption, and use of mobile phones [16]. Driver behavior can be improved through traffic safety education programs. These are important for all the noted reasons which involve novice drivers. Therefore, the importance of obtaining a driver's license and the importance of quality training of future drivers is especially emphasized [17]. Acquiring a driver's license, and even the principles of how driving schools operate, differ from country to country. In France, until 1997, compulsory military service was a way for young French men to obtain their driver's license. With the abolition of military service, the number of drivers in France was reduced, but still, due to modern life routines, men were practically "forced" to obtain their driver's license [18]. In developed countries, in order to increase traffic safety, driving simulators are used in training, where the learning candidate is practicing driving in a virtual environment [19]. In Austria, after taking the driving test, they get a "trial driving license", and after a year, the candidates pass another knowledge test and safe driving training at a special training ground, which proves that they are ready to obtain a "permanent driving license". Depending on the country in which the driver's license is applied for, there are informal and formal driver training. Informal driver training involves the presence of an experienced driver with the person who is learning to drive. Formal training involves a standardized driving curriculum, with defined training hours [17]. In the Republic of Serbia, formal driver training is mandatory, and it implies mandatory attendance at driving schools. One of the main reasons of the large number of traffic accidents is inadequate quality of training provided to candidates in driving schools. The reason behind this problem is the lack of financial resources and the lack of professional staff, as well as the inadequate control of driving schools by

government-employed inspectors. Therefore, it is necessary to work on the continuous improvement of knowledge and skills of employees in driving schools.

III THE IMPORTANCE OF EDUCATION AND IMPROVING THE KNOWLEDGE OF EMPLOYEES IN DRIVING SCHOOLS FOR TRAFFIC SAFETY

In the Republic of Serbia, new laws on traffic safety and a wide array of new sub-regulations have practically "reengineered" the concept of how drivers' licenses are acquired. With new laws in place, theoretical training and theoretical exams before starting practical training, as well as licensing of employees who teach driving school candidates, became mandatory. To become an instructor in driving schools, education in the domain of traffic and/or traffic safety is required. Another option is to complete a training program. However, regardless if there is formal education in the domain of traffic and traffic safety, every new potential instructor has to obtain a license in order to teach in driving schools. After introducing new comprehensive laws and regulations, at the beginning of 2013, conditions were met for the Traffic Safety Agency to start licensing new instructors for driving school positions.

Lecturers of theoretical training - have a great professional challenge in front of them in terms of establishing a solid and correct foundation for future drivers. This theoretical background is the cornerstone of safe participation in traffic of future drivers. Theoretical training lecturers are a novelty in the process of training candidates who want to obtain their drivers' license. The importance of these lecturers is evident even in the training program for becoming a lecturer. Namely, five main subjects are learned within 35 hours. This training is mandatory, before the future lecturer can take on the professional exam [20]. The program for taking the professional exam for a lecturer of theoretical training, includes the following subjects: Traffic ethics, Road traffic safety, Traffic safety regulations, Driver training and taking driving exams, Theory of performing work on the road, Methodology of conducting theoretical training.

Driving instructor - the basic task of the instructor is to enable the candidate to drive the vehicle properly. The instructor should have knowledge of safe participation in traffic. In addition, the instructor has to know how to apply the driver training methodology. During the entire course of the training, the instructor's attention is

focused on the candidate's actions while driving, and on traffic in general. This is important, as candidates, due to inexperience, can make a wrong moves that would endanger themselves and other participants in traffic. The exam to become a driving instructor can be taken by a driver who has reached the age of 21 and has a driver's license for at least three years.

Examiner - the process of licensing examiners consists of taking a professional exam. This exam is taken in front of the examination committee of the Traffic Safety Agency. The exam consists of a theoretical part and a practical part. The exam includes questions that depend on which program is the candidate enrolled. Candidates who have passed the theoretical part of the exam (mostly by taking extending deadlines), are eligible to take the practical exam. In order to pass the professional exam, the candidate has to receive a qualitative grade "passed" in the theoretical part of the professional exam (where at least 80% of the total number of points for each individual module is acquired) and to receive the qualitative grade of "satisfied" in the practical part of the professional exam (where the candidate must meet the condition that he already has a driving instructor license, issued by the Traffic Safety Agency). The subjects that are taken in the professional exam (to become examiners) are: Traffic ethics, Traffic psychology, Pedagogy and andragogy, Road traffic safety, Regulations on traffic safety, Driver training and passing the driving test, Vehicles, and Theory of performing work with a vehicle on the road [20].

After the licenses are issued, lecturers of theoretical training, driving instructors, and examiners are required to attend seminars for improving knowledge. In addition, the Traffic Safety Agency is required to adopt an annual plan of mandatory seminars for improving the knowledge of driving school staff. The licenses are valid for five years. License holders are obligated to attend five seminars during those five years, as well as to pass a knowledge test in order to renew their license. The program of mandatory seminars for improving the knowledge of instructors includes the following subjects: Traffic Ethics, Traffic Psychology, Pedagogy and andragogy, Road Safety, Traffic Safety Regulations, Driver Training and driving Exam, Vehicles, Theory of Performing Vehicles in Road Traffic and Practical driver training methodology.

The obligatory seminars include programs in five subjects that the lecturer has passed when he took

the professional exam in the first place. The obligatory seminars of examiners include eight subjects and these are shared subjects with driving instructors with the addition of Methodology and technique for training candidates for the driving test. These obligatory programs are aimed at improving knowledge and skills of employees at driving schools.

IV RESEARCH METHODOLOGY

The subject and research problem of this paper aims at identifying the importance of improving knowledge and skills of employees in driving schools, in order to provide candidates with quality training and to increase traffic safety. In addition, the paper tends to identify the extent to which employees' education, knowledge and skills affect the quality of their work. The aim of the research is to show how much knowledge, and skills of employees in driving schools possess and to what extent they improve it. Additionally, the goal is to analyze how does employee knowledge affect the quality of their work, and based on the results, suggestions for improvements are proposed.

The research was conducted via structured survey. Overall, there are 74 respondents (N=74). The sample is consisted of employees in driving schools that operate in the Republic of Serbia. The employees are of different profiles (lecturers of theoretical training, driving instructors of all vehicle categories, and examiners). In addition, the survey included questions regarding gender, age, and education.

The survey contains 19 items, which are categorized into five dimensions. These dimensions are:

1. Importance of acquired knowledge during education;
2. Importance of seminars and tests for knowledge improvement;
3. Importance of independent learning on knowledge improvement;
4. Importance of practical exams;
5. Importance of knowledge and its improvement for quality training.

Dimensions were evaluated with five-point Likert scales (1 - negative attitude/irrelevant/weak; 5 - strong attitude/very important/significant). As noted previously, other, non-Likert scale items were also included (age, gender, education etc.).

Based on the defined research problem, research goals and defined dimensions, the following hypotheses are developed:

- H1: There are significant correlations between control variables (gender and education) and the observed research dimensions.
- H2: There are significant correlations between the observed research dimensions.

The obtained data was processed in the IBM SPSS Statistic Version 21 software. The main statistical tools and methods were descriptive statistics and correlation analysis.

V RESEARCH RESULTS AND DISCUSSIONS

Table 1 presents the results of the descriptive statistics for all five dimensions.

TABLE 1. DESCRIPTIVE STATISTICS FOR ALL OBSERVED DIMENSIONS

	N	Min	Max	Mean	Std. Deviation
Importance of acquired knowledge during education	74	3	15	11,55	2,906
Importance of seminars and tests for knowledge improvement	74	10	30	20,80	3,690
Importance of independent learning on knowledge improvement	74	2	10	7,69	1,894
Importance of practical exams	74	5	10	8,38	1,300
Importance of knowledge and its improvement for quality training	74	6	10	9,32	1,087
Valid N (listwise)	74				

In Table 2., the results of the correlation analysis are presented. The results provide insight into the relations between the observed variables.

From the correlation analysis it can be noticed that there is a significant correlation:

- between Gender and the Importance of knowledge acquired during education at 0.244 * (level of significance at 0.05);
- between Education and the Importance of seminars and tests for improving knowledge at 0.271 * level of significance at 0.05);

From the above, it can be concluded that hypothesis H1: There are significant correlations between control variables (gender and education) and the observed research dimensions. is confirmed.

at 0.567 ** (level of significance at 0.01);
Importance of practical exams at 0.399 ** (level

TABLE 2. CORRELATION ANALYSIS

	Gender	Age	Education	School of traffic as and educational background	Importance of acquired knowledge during education	Importance of seminars and tests for knowledge improvement	Importance of independent learning on knowledge improvement	Importance of practical exams	Importance of knowledge and its improvement for quality training
Gender	1	-,196	,105	,032	,244*	-,100	,208	,112	,124
Age	-,196	1	-,141	,188	,110	,038	,048	-,110	,185
Education	,105	-,141	1	-,122	,194	,271*	,206	-,019	,141
School of traffic as and educational background	,032	,188	-,122	1	,020	,138	-,078	,191	,160
Importance of acquired knowledge during education	,244*	,110	,194	,020	1	,578**	,973**	,444**	,459**
Importance of seminars and tests for knowledge improvement	-,100	,038	,271*	,138	,578**	1	,567**	,427**	,331**
Importance of independent learning on knowledge improvement	,208	,048	,206	-,078	,973**	,567**	1	,399**	,422**
Importance of practical exams	,112	-,110	-,019	,191	,444**	,427**	,399**	1	,503**
Importance of knowledge and its improvement for quality training	,124	,185	,141	,160	,459**	,331**	,422**	,503**	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Further, significant correlations can be observed between the following dimensions:

- Importance of acquired knowledge during education and Gender at 0.241 * (level of significance at 0.05); Importance of seminars and tests for knowledge improvement at 0.578 ** (level of significance at 0.01); Importance of independent learning on knowledge improvement at 0.973 ** (level of significance at 0.01); Importance of practical exams at 0.444 ** (level of significance at 0.01); Importance of knowledge and its improvement for quality training at 0.459 ** (level of significance at 0.01).
- Importance of seminars and tests for knowledge improvement and Education at 0.271 * (level of significance at 0.05); Importance of acquired knowledge during education at 0.578 ** (level of significance at 0.01); Importance of independent learning on knowledge improvement at 0.567 ** (level of significance at 0.01); Importance of practical exams at 0.427 ** (level of significance at 0.01); Importance of knowledge and its improvement for quality training at 0.331 ** (level of significance at 0.01).
- Importance of independent learning on knowledge improvement and Importance of acquired knowledge during education at 0.973 ** (level of significance at 0.01); Importance of seminars and tests for knowledge improvement

of significance at 0.01); and Importance of knowledge and its improvement for quality training at 0.422 ** (level of significance at 0.01).

- Importance of practical exams and the Importance of acquired knowledge during education at 0.444 ** (level of significance at 0.01); the Importance of seminars and tests for knowledge improvement at 0.427 ** (level of significance at 0.01); the Importance of independent learning on knowledge improvement at 0.399 ** (level of significance at 0.01); and the Importance of knowledge and its improvement for quality training at 0.503 ** (level of significance at 0.01).
- Importance of knowledge and its improvement for quality training and the Importance of acquired knowledge during education at 0.459 ** (level of significance at 0.01); the Importance of seminars and tests for knowledge improvement at 0.331 ** (level of significance at 0.01); the Importance of independent learning on knowledge improvement at 0.422 ** (level of significance at 0.01); and Importance of practical exams at 0.503 ** (level of significance at 0.01).

Based on these results, it can be concluded that hypothesis H2: There are significant correlations between the observed research dimensions. is confirmed.

It can be noticed that the strongest correlation coefficients exists between Education and the Importance of seminars and tests for knowledge improvement (0.271 *). Overall, there are significant correlations between all five dimensions, while the Age of the respondents and the School of traffic orientation do not correlate with any of the observed dimensions.

The results indicate that every aspect of knowledge improvement, is important, and that they are all connected (they have a mutual influence). It is necessary to raise the awareness of employees in driving schools about the importance of their education, as well as the improvement of their knowledge. Given that the prices, places and dates of knowledge improvement seminars are not always available to everyone, regulation is needed in order to improve the conditions for knowledge improvement. This would increase the motivation of employees in driving schools to independently improve their own knowledge and skills.

VI CONCLUSION

Knowledge, as a result of employee development, has become a strategic resource and a source of competitive advantage for all enterprises. Therefore, in order to survive and be more successful on the market, organizations must insist on creativity, adaptability and continuous learning. More precisely they must transform into a learning organization. This is where the importance of leaders, (managers), comes into play. Their task is to motivate and encourage their employees to learn and improve their knowledge and skills.

Knowledge and learning play an important role in traffic safety. Training of drivers to drive motor vehicles is conducted in driving schools. Driver training is a systematic development of a set of behaviors that consist of attitudes, and knowledge and skills. To achieve this goal, it is necessary that the employees (theoretical training lecturers, driving instructors and examiners) involved in the training of new drivers, be sufficiently trained for the job. Additionally, they have to possess adequate knowledge, as well as to continuously improve their knowledge. These employees have to must obtain adequate licenses in order to train candidates for drivers, and they are obligated to attend knowledge improvement seminars, which are organized by the Traffic Safety Agency. After the expiration of their license, they are obligated to retake the exam and renew their license.

Based on the results of the conducted research, it can be concluded that education and knowledge of driving school employees, as well as the improvement of knowledge and skills through knowledge improvement seminars, have an strong impact on the quality of training. For that reason, it is necessary to constantly encourage the improvement of knowledge and skills of driving school employees. Is also necessary to conduct changes that would make it more accessible to all employees in driving schools in the Republic of Serbia to attend seminars.

REFERENCES

- [1] Abrešek, B., & Flogie, A. (2018). Evolution of competences for new era of education 4.0. International Conference Adaptive Technologies in Learning Control ATL – 2018. Ukrajina: Odesa.
- [2] Ishak, R., & Mansor, M. (2020). The Relationship between Knowledge Management and Organizational Learning with Academic Staff Readiness for Education 4.0. Eurasian Journal of Educational Research 85, 169-184.
- [3] Drašković, M. (2010). Znanje kao neograničen resurs objekta pravljanja. Montenegrin Journal of Economics (6) 11, 83-90.
- [4] Nonaka, I., & Takeuchi, H., (1995) The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation. New York: Oxford University Press.
- [5] Lam, A. (2000). Tacit knowledge, organizational learning and societal institutions: an integrated framework. Organization Studies 21 (3), 487-513.
- [6] Gupta, B., Iyer, L.S., & Aronson, J. (2000). Knowledge management: practices and challenges. Industrial Management & Data Systems 100 (1), 17-21.
- [7] Olson, D.L. (2018). View of IJPR contributions to knowledge management in supply chains. International Journal of Production Research 56 (1-2), 733-742.
- [8] Bergeron, B. (2003) Essentials of knowledge management. John Wiley & Sons
- [9] Ensslin, L., Carniero Mussi, C., Rolim Ensslin, S., Dutra, A., & Pereira Bez Fontana, L. (2020). Organizational knowledge retention management using a constructivist multi-criteria model. Journal of knowledge management 24(5), 285-1004.
- [10] Atlagić, M., & Macura, M. Đ. (2013). Menadžment: organizacija koja uči i savremeno poslovanje. CIVITAS 3 (5), 160-177.
- [11] Tojagić, M. (2015) Bezbednost drumskog saobraćaja. Brčko: Evropski univerzitet.
- [12] Ahmed, I. (2013). Road infrastructure and road safety. Transport and Communications Bulletin for Asia and the Pacific, 83, 18-25.
- [13] Mascaret, N., Nicolleau, M., & Ragot-Court, I. (2020). Development and validation of a scale assessing achievement goals in driving. PLoS ONE 15(3).
- [14] Bener, A., Abu-Zidan, F.M., Bensiali, A.K., Al-Mulla A.A., & Jadaan, K.S. (2003). Strategy to improve road safety in developing countries. Saudi Medicinal Journal 24(6), 603-608.
- [15] World Health Organization (2019). Road Safety Strategy 2019.
- [16] Ali, E.K., El-Badawy, S.M., & Shawaly, E-S.A. (2014). Young Drivers Behavior and Its Influence on Traffic Accidents. Journal of Traffic and Logistics Engineering 2(1), 45-51.
- [17] Jawi, Z.M., Deros, B.M., Rashid, A.A.A., Isa, M.H.M., & Awang, A. (2017). The Roles and Performance of Professional Driving Instructors in Novice Driver Education. SQU Medical Journal 17(3), 277-285.
- [18] Avrilier, P., Hivert, L., & Kramarz, F. (2010). Driven Out of Employment? The Impact of the Abolition of National Service on Driving Schools and Aspiring Drivers. British Journal of Industrial Relations 48(4), 784-807.
- [19] Abdelgawad, K., Gausemeier, J., Stöcklein, J., Grafe, M., Berssenbrügg, J., & Dumitrescu, R. (2017). A Platform with Multiple Head-Mounted Displays for Advanced Training in Modern Driving Schools. Designs 2017 1(8).

- [20] Alimpić Z., Bogićević S., & Dragutinović Jovanović N. (2014).
Licenciranje kadrova za osposobljavanje kandidata za vozače u
Republici Srbiji. 9. Međunarodna Konferencija,
Bezbednost saobraćaja u lokalnoj zajednici. Srbija: Kragujevac.