WORK BASED LEARNING:
A ROAD TO OPPORTUNITIES
Dear readers,

Five years ago, when the implementation of the German Development Cooperation project “Reform of Vocational Education and Training” started, the state of three-year vocational education, as well as the situation regarding youth employment, were at an unenviable level. For years, the unemployment rate for the age group 15-24 had not fallen below 40 percent. At the same time, jobs in technical occupations remained vacant, because employers could not find qualified workers for in-demand professions. Many secondary vocational school graduates had difficulties finding work, because their education was focused more on theoretical knowledge and less on practical skills sought by companies. Three-year educational profiles represented dead-ends for young people and their parents, with no prospects.

Changing this situation required strengthening and improving cooperation between the educational system and businesses, i.e. schools and companies. This cooperation served as the basis for the educational model with elements of dual education introduced by the project “Reform of Vocational Education and Training”. On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) this project is being implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH with the aim of providing support to the Ministry of Education, Science and Technological Development of the Republic of Serbia in its efforts to reform secondary vocational education.

The educational model with elements of dual education, in accordance with the conditions in Serbia, involves part of the educational process unfolding in a school, and part in a company cooperating with the school. This step forward compared to the so-called traditional teaching in secondary vocational schools consists of improved work-based learning in companies, implemented on modern machines and using modern technologies that schools do not have. Company instructors trained for working with youth are responsible for the acquisition of professional competences by the students. Work-based learning in companies, in real working conditions, in addition to professional skills, enables students to also gain social skills through cooperation with senior colleagues. Combining the knowledge they acquire in school with the practical knowledge and skills acquired at the companies prepares students properly for the demands of the economy, thereby providing them greater employability upon graduation.

Companies that cooperate with schools provide students with additional forms of support, such as purchasing protective equipment, covering travel expenses, hot meals, etc. and many of them – provide
scholarships or symbolic financial reimbursement for work-based learning. In addition to the agreements on business-technical cooperation concluded by the school with the company, contracts are signed between students, and/or their parents/caretakers, and the companies, to define the mutual rights and obligations of all parties.

The experience and results during the five years of project implementation have been more than positive. From deprecated profiles nobody wanted to enrol in a few years ago, now we have modernized profiles educating students for occupations with high employability potential, with an increasing number of students enrolling every year. Currently, around 2700 students in 52 schools in Serbia are being educated in one of the profiles modernized with the support of the project: locksmith-welder, electrician, industrial mechanic, mechanic for motor vehicles, fashion tailor and electro-fitter for networks and installations. For youth faced with the choice of a future career, three-year technical education became a prospective option. The companies are also satisfied. By providing work-based learning in their production facilities, they are gaining qualified staff profiled in accordance with their needs. Thus, it comes as no surprise that an increasing number of employers are ready to join the project and support schools in implementing of the dual education model.

One of the key achievements in the implementation of the “Reform of Vocational Education and Training” project is the Law on Dual Education, adopted by the National Assembly of the Republic of Serbia in November 2017. The Law will come into force starting with the 2019/20 school year, and its implementation will provide for the successful and sustainable implementation of dual education in Serbia. In addition to the support provided to Serbian institutions in developing the Law and respective by-laws, many aspects regulated by these legal documents greatly draw on experiences gained during project implementation.

However, the most highly visible result of the five years of project implementation is the employment of graduates from the first generation of students educated according to the model with elements of dual education. More than 65% of those passing the final examination in profiles modernized with the project support have found employment during the first six months after graduation, the majority in the companies where they attended work-based learning during secondary education. Some of the secondary school graduates decided to embark on the path of further education. The stories that follow will show you the experiences of these young people and what the representatives of their former schools and current employers have to say about them.

Enjoy reading!
“I am proud when I make something using my own hands”

Aleksandar Babić (20 years of age)

Former student of the Technical School in Obrenovac

Completed the educational profile locksmith-welder

Employed at the “Termovar Pro” company in Obrenovac
Aleksandar Babić, a former student of the Technical School in Obrenovac, passed the final examination for the occupation of locksmith-welder in June 2017. Along with a friend from his class, he attended work-based learning at “Termovar Pro” company near Obrenovac. This company has twenty-three employees and the main fields of work are production of thermal energy and processing equipment and metal processing activities.

Management of “Termovar Pro” was happy with Aleksandar’s progress and potential and decided to offer him an open-ended employment contract after he completed secondary school. Aleksandar was very happy to accept that offer. However, the start of professional development for Aleksandar was rocky. He first opted for the educational profile of welder, because he heard that this profession can quickly lead to a well-paid job. After one year in that profile, he realized he was unhappy and that the profile and method of education did not suit him. Therefore, during the second year he transferred to the profile of locksmith-welder, with elements of dual education, where his full potential blossomed.

“The profession of welder drew me in because I knew it had good prospects and I could make a decent living with it. However, later I moved to the locksmith-welder profile because I wanted to learn other things.”

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Aleksandar Babić
of school he already had sufficient capacities to become a top-level locksmith-welder. That is why we gave him various tasks – he worked on several manufacturing posts and handled each without any issues. In addition to his abilities and effort, he showed a good character, something very important for us because we want to maintain good interpersonal relationships within the company.”

Family atmosphere at the working facility

The atmosphere among colleagues in the “Termovar Pro” company is best reflected through the opinions of students referred here for work-based learning. They say that they are friends with their colleagues at work and outside it. Last year, the employees of this company collected pocket money for the summer vacation of a student referred there for work-based learning, while this year they quizzed some of the underperforming students about their schoolwork and helped them study to have the best possible grades.

“My heart is brimming when I see an almost entire generation of students find jobs very quickly after graduation.”

Rajka Babić,
headmistress of the Obrenovac Technical School
The headmistress of the Technical School in Obrenovac, Rajka Babić, believes that not only for Aleksandar, but for many other students, education with elements of dual education was a complete success. Of the 12 students who passed the final examination in the first generation of locksmith-welders, 11 have found jobs. The school continued to provide training for this profession, and now each grade has one class of locksmith-welders. They are always full, since in a small town like Obrenovac word got around that this is a job with prospects. As well as the students, the companies are also happy, since this provides them with trained and professional staff. In the beginning, the school had to contact companies to explain what they would gain through cooperation with the educational system, and now the tables have turned – the companies are contacting the Technical School in Obrenovac wishing to receive students for work-based learning.

“...when I see an almost entire generation of students find jobs very quickly after graduation – and not just any work. We mainly cooperate with small and medium-sized enterprises whose owners we know, and we are aware of the efforts they are making to provide students with quality work-based learning and a pleasant working environment. Many of them treat our students the same as their own children – they know if the students are in love with someone and who that someone is, if anything troubles them, some pay them driving lessons and similar things that go beyond their duties”, says Rajka Babić, adding: “We, at the Technical School, are content, because we know that we will be leaving these young people in safe hands even after their graduation”.

Aleksandar confirms this. He says he was very happy to come to “Termovar Pro” during his secondary school, because he had a good relationship with his instructor and older colleagues, but also because he had the opportunity to learn something new every day. Now, when he is working for this company, he is happy with the working conditions and salary, and hopes he will continue his professional development. He believes he was given an opportunity to build the future he wanted. “Many of my peers sleep in during working days, and expect someone else to find them a job. I am proud to be working, to have an unlimited contract, and to contribute to the company I work at. I am happy to have become independent, to not have to ask my parents for pocket money, and to decide on my own what I will spend the money I earned on”, says Aleksandar.

“In addition to his abilities and effort, Aleksandar showed a good character, something very important for us.”

Sima Isailović, “Termovar Pro” director
Medals from competitions and a good job

Danijel Brzovan (18 years of age)

Former student of the “Ivan Sarić” Technical School in Subotica

Completed the educational profile locksmith-welder

Employed at the “Grgo bravar” company in Subotica
The “Ivan Sarić” Technical School in Subotica has been enrolling students in profiles with elements of dual education since the 2014/15 school year. In order to train workers competitive in the labour market and in demand in local companies, the school established cooperation with large global brands, like “Siemens” and “Continental”, as well as smaller local companies. One of them is “Grgo bravar”, a company with 95 employees which manufactures steel transport frames for shipping car parts for giants of the automotive industry. “Grgo bravar’s place”, as the people of Subotica say, was the work-based learning venue for Danijel Brzovan, a student of the first generation of locksmith-welders. Danijel acquired many skills during the second and third year of secondary school, ensuring employment in this company immediately after graduation.

Even before finding a job at “Grgo bravar”, Danijel displayed a lot of interest in working in his profession. During his student days he won second place at the national welding competition for mechanical engineering schools, then continued with a number of excellent results in other welding competitions and events. Even after finding a job he continued to train for competitions, with the ambition of winning first place one day. He says he is doing what he loves, and this love is a source of motivation to constantly break the limits of his professional achievements.

Danijel, however, didn’t always dream of being a locksmith-welder. He enrolled in the “Ivan Sarić” Technical School because he heard that it was easy to find a job in this line of work. Fortunately, he had a lot of talent for welding, something his instructors discovered while he was on work-based learning at the company. He completed the first year with average grades, but after the second year of school, when he started work-based learning at “Grgo bravar”, his grades gradually improved, only to complete the third year with excellent grades, as the best student
of his generation. “Practical training helped me a lot in this. I had theoretical knowledge, but it only became applicable when I first encountered the work processes here. Simply put, I found it easier to understand the theory once I saw how things are done in practice, rather than learn everything from a book”, Danijel explains his development. When he was declared the best student of his generation, this young man received a welding machine from the company where he went for work-based learning. This meant a lot to him, he says, because the award made him realize people appreciated his work and effort.

Željko Majanović, technical manager at the “Grgo bravar” company, is proud of Danijel and, just like the other employees, cheers him on in his efforts to continue participating in welding competitions. Establishing this type of cooperation with the school was a novelty both for the company, as well as the former student: “This was a sobering experience for the students. First, they realized what it was like in practice to spend time in manufacturing plants, to have obligations and duties, as well as rights, how it is to work in a team and create products that have utility value. For Danijel, this was a source of motivation to develop and constantly extend his professional capacities.”

This company took part in the project “Reform of Vocational Education and Training” and the introduction of elements of dual education because of the deficit in the supply of locksmith-welders in the market, but also because it does not wish to be a silent observer of the disappearance of this profession. “We cannot wait for someone else to produce workers for us. We must take part in their education, as part of the economy. We realized that unless we did this, we would be left without workers, and that benefits no one”, says Majanović.

“Students’ obligations are regulated by contract, along with their rights - they are not employees, they are learning through work.”

Ivan Bajić, headmaster of the “Ivan Sarić” Technical School
We know everyone’s rights and obligations

Ivan Bajić, headmaster of the “Ivan Sarić” Technical School, believes the model of education where businesses are taking active part is providing young people with better employment prospects, adding that all the students, 16 of them, from the first generation of locksmith-welders found jobs immediately upon graduation. Noting an increase in interest for educational profiles implemented according to the model with elements of dual education, the school introduced another such profile – industrial mechanic. Bajić claims that this model of education, unlike the former “apprentice school”, provides educational institutions with insight into the implementation of work-based learning in companies and an opportunity to actively monitor the realization of the curriculum. “The curriculum was designed by experts and corresponds to the age of the students. Student obligations are regulated by contract, along with their rights - they are not employees, they are learning through work, the employer is obliged to ensure student safety at the workplace, and numerous companies also provide them with various incentives”, says the headmaster and adds that in return, the students are expected to have positive grades and make an effort. If any of the students has failing grades at the end of the semester, the companies stop paying them their scholarship until they improve their grades. This, he believes, provides students with an important life lesson – making effort pays off.

Danijel Brzovan learned this lesson quickly – in a very short time he achieved excellent grades at school, became the best student of his generation and proud owner of welding medals. Even after graduation, he continued his participation in professional competitions. Responding to the question of what defines him, a bearer of several professional certificates, as a quality locksmith-welder, Danijel says without much thought: “A steady hand, good concentration and basic spatial orientation”. The success he has had to date motivates him to think about further education, for example enrolling in the fifth level of education. This would provide him with the preconditions for becoming a foreman, along with additional experience that would allow him, if he so wishes, to one day start his own business. “I am not saying that I would leave ‘Grgo bravar’, because I am happy here, but I want to have more options”, says Danijel.

“We cannot wait for someone else to produce workers for us. We must take part in their education, as part of the economy.”

Željko Majanović, technical manager at “Grgo bravar”
Everything is nicer and easier when you earn your own money

Jovan Savić (19 years of age)

Former student of the Polytechnic School in Kragujevac

Completed the educational profile locksmith-welder

Employed at the “Unior Components” company in Kragujevac
Students of the first generation of locksmiths-welders from the Polytechnic School in Kragujevac, attending work-based learning at the “Unior Components” company, were provided with scholarships, quality work equipment and top-tier instructors. This motivated them to study diligently and improve their knowledge daily, leading to the two best students being hired by this company immediately after graduation. One of them is Jovan Savić, who moved out of his parents’ home after getting the job. Jovan is now living with a roommate in a rented apartment in the city, paid for by the company, so that he wouldn’t have to commute over 20 kilometers to his workplace. He keeps his home in order, goes to work regularly, and has time to see his friends. How did this young man’s life change so much in only three years?

“I was born and raised in a village, so ever since I was little I got used to rising early and working. However, I realized that the life of a farmer is difficult and insecure, since it depends on the weather. Therefore, I decided to enrol in a vocational school. I asked around about occupations in demand, and from what I heard, I assumed that as a locksmith-welder I could find work easily. So I enrolled in this profile at the Polytechnic School. One lucky circumstance is that during the second year, when I started coming to ‘Unior’ for practical training, I discovered I was good
at this job”, Jovan explains how he made one of the key decisions in his life – the choice of career.

Being one of the students on work-based learning in this company in Kragujevac, Jovan distinguished himself with great motivation and agility. He says the manufacturing plant was almost like a natural environment for him, and another thing that contributed to his success was the constant readiness of colleagues and instructors to help. “I preferred learning through work to learning from books. We were never bored or uncomfortable during practical training. The older colleagues always tried to cheer us up and make us relax, because it is easier to learn when there is no pressure. We could always ask them about anything we found unclear, and they would leave their work for a moment, explaining to us whatever we needed”, says Jovan.

Unlike the third year of secondary school, when he used to spend three days a week on work-based learning, Jovan now goes to work every day, and remains there full-time. He loves the first shift the most, because he is used to rising early. “It's great when I come in during the morning and complete an eight hour shift, and it's still daylight outside. Then I go play football with my friends, or we go downtown for drinks.”

He notes that life is much better and easier “when you earn your own money”. Nevertheless, he did not forget his closest family, and sets aside part of each paycheck as help for the rest of his family.

“Jovan is a modest and well raised young man, not a materialist, he can appreciate being economically independent”, says Nikola Šebek, assistant headmaster of the Polytechnic School in Kragujevac. Šebek believes that young people today are very pragmatic when choosing their occupation, i.e. they frequently choose ones in demand in the labour market. “We noticed that our students found the incentives offered by companies during practical training very significant, but the profile of locksmith-welder attracted them primarily because of employment opportunities. It turns out that they made the right assessment. The entire class, except for those wanting to continue with school, found jobs very soon after graduation. Some of them are so happy with the working conditions and salary that they cannot hide it. One former student, now working as a locksmith-welder, proudly declared to the school headmaster Siniša Kojić that he now has a higher salary than he, as a headmaster. “We are glad to hear things like that”, says Šebek, adding that after the positive experiences with the locksmith-welder profile this school decided to introduce the educational profile mechanic for motor vehicles, also with elements of dual education.
The will to learn is more important than school grades

“Unior Components”, a company that employs approximately 160 people, according to Dragan Živković, director of the programme of welded structures, joined the project of introducing elements of dual education because of a constant deficit of welding staff. They are satisfied with their cooperation with the school and the skills of the two former students they hired. “Our expectations have generally been met. Everyone did their part of the job correctly – the school sent us good students for practical training, we tried to provide them with as much knowledge as possible, and they were highly motivated to learn. We hired the two students that best suited us, not just regarding the skills acquired, but also their will for constant development. This is more important for us than school grades”, says Živković, adding: “Even now, when they are employed, they did not lose their motivation to work – sometimes they come in a little early and look at welds from the previous shift, analysing them, commenting for themselves on what is good and what is not, and what should have been done differently. They are extremely interested in their work.”

Jovan Savić explains his motivation with the saying that “a man learns as long as he lives”, especially a young man who certainly cannot have as much knowledge as someone who has spent 30 years doing this work. “That is why whenever I do not understand something, I ask older colleagues for help”, says Jovan.

“Young people today are very pragmatic when choosing their occupation, i.e. they frequently choose ones in demand in the labour market.”

Nikola Šebek, assistant headmaster of the Polytechnic School Kragujevac
Three-year education is not a dead end

Luka Grubač (18 years of age)

Former student of the Polytechnic School in Kragujevac

Completed the educational profile locksmith-welder

Continued education after three-year profile
Among the 28 graduates of the first generation of locksmith-welders at the Kragujevac Polytechnic School, 25 students found jobs in local companies immediately after graduation. One of those who did not immediately replace their student ID with an employment ID was Luka Grubač. Not because employers were not interested in him, but because Luka had different plans. Luka refused the offer by the “Gorenje” company for professional development at the School Centre in Velenje, in Slovenia, because he decided to continue his education in his hometown. After completing his three-year education, he enrolled in the fourth degree at the Kragujevac Polytechnic School, intending to proceed from there to the Faculty of Mechanical Engineering.

Responding to the question of why he decided on further education when he was already offered a job in a well-known company from Kragujevac, Luka says: “I was an excellent student in primary school and at first my parents, who wished for me to acquire higher education, talked me into enrolling in the Second Gymnasium in Kragujevac. However, observing the political and economic situation in the country, I realized that faculty diplomas are not in high demand in the labour
market, while there is immense employer interest in technical professions, including that of welders. This is why I transferred to the locksmith-welder educational profile at the Polytechnic School, wanting to ensure my future.

Although he was good at the theory during his education, Luka believes that work-based learning also contributed a lot to his success and helped him bear the title of the best student of his generation. He hopes that the knowledge and skills he gained during secondary education will also be useful during the coming period, because, as he says, there are several professional subjects at the Faculty of Mechanical Engineering, involving the acquisition of skills he already gained during work-based learning at the “Alfa Technics” company. However, in the beginning it did not seem as if work-based learning in manufacturing plants would suit him. “My first time in a workshop was a bit scary. It is a large room, with lots of machinery you do not know and are afraid you could break. However, having instructors always around you, willing to show you how to handle them, practical training quickly became interesting, because each day you would try to do better than you did yesterday. My first weld went bad, I joked with my older colleagues that it looked like a worm. However, in time I learned to do things correctly. When I completed third year, the difference to my first work was enormous - you could never guess the same person did the welding”, Luka cheerfully explains the progress of his welding skills.

Siniša Kojić, the headmaster of the Polytechnic School in Kragujevac has only words of praise for Luka, but also notes that he was not an exception, and that in locksmith-welder classes, during the first generation just as it is now, there are many diligent young men, excellent students. One of them is Stefan Ulamović, Luka’s former classmate who accepted the offer of the School Centre in Velenje and enrolled there in additional, two-year training to become a technician of mechanical engineering. He became a scholarship recipient of the “Gorenje” company and moved to Slovenia. The costs of education, food and occasional travel to his hometown of Kragujevac are all paid for him during his training in Velenje. He is provided with accommodation at a students’ dormitory with a swimming pool and gym, which is not quite customary, and on top of it all, Stefan is receiving a scholarship. “His mentors and teachers are extremely happy, and hope that we will continue to send such diligent and capable students to Slovenia for further development in the future”, says Kojić. After completing his professional development, Stefan will have the option of accepting a job in “Gorenje” in Kragujevac or continuing his vocational studies.

“A three-year school can be very useful, first of all because one can find a job more quickly, but also because it provides opportunities for continued education, if the person has the will and desire for further development.”

Luka Grubač
Options for various career paths

If he achieves his plan of graduating from the Faculty of Mechanical Engineering, Luka Grubač will have three occupations: locksmith-welder, metal lathe or mill technician, depending on the profession he chooses for further education, and mechanical engineer. Although he is certain that the knowledge he has acquired can provide him with employment as a welder, he is dedicated to the idea of continuing education. “Now I have mastered a craft with great prospects, and it will provide me with a job in case I do not complete my studies”, says Luka. He would not take failing at the faculty too harshly, he says, since in the meantime he came to love welding. However, in accordance with his philosophy of lifelong learning and always setting new challenges, he hopes he will gain a faculty diploma. With this goal in mind, he is currently completing the fourth year of the Polytechnic School as an part-time student, along with preparatory lectures for the entrance exam at the Faculty of Mechanical Engineering.

If he were to give advice to a young person currently choosing their career, Luka Grubač would say: “First of all, one should be rational. The gymnasium is a good option, but not the only one. A three-year school can be very useful, first of all because one can find employment more quickly, but also because it provides opportunities for continued education, if the person has the will and desire for further development.”

Siniša Kojić, the headmaster of the Polytechnic School in Kragujevac, says that in the locksmith-welder classes in his school there are many diligent young men, excellent students.
“I acquired useful knowledge, but also working habits”

Miroslav Simović (18 years of age)

Former student of the Polytechnic School in Kragujevac

Completed the educational profile locksmith-welder

Employed at the “Unior Components” company in Kragujevac
Growing up in a house where there was a lot of talk about welding and spending time in the workshop of his father, a welder by trade, Miroslav Simović from Kragujevac came to love this occupation early in his life. When he was presented the opportunity to enrol in the educational profile of locksmith-welder, he did not think much – he enrolled at the Polytechnic School, he proved himself to be good and diligent on work-based learning at the “Unior Components” company, where he was hired after graduation.

“During practical training at ‘Unior’ I tried to present myself the best I could, because I really wanted to be hired by that company. They have very high quality workers you can learn a lot from, and I use this opportunity whenever I can. That is probably the reason for my quick progress – now I am great at welding, although I still lack some knowledge of locksmithing to be a complete master”, Miroslav says modestly, as he strolls proudly through the manufacturing plant in his work overalls. He admits he has not yet reached the skill level of his older colleagues, but he has learned enough to be able to work independently.

The knowledge and skill he gained during work-based learning set him apart from
the competition. Aware that the training at Unior would be very useful, he worked diligently, perfecting his craft. However, everything was difficult for him at first, because he did not have any developed work habits. This is confirmed by Nikola Šebek, assistant headmaster of the Kragujevac Polytechnic School, who says that going to the companies is a new experience for most students, and only there do they have the opportunity to learn many things that they did not understand before: “There is a production cycle in working plants, meaning that students must respect both the time of coming to practical training and the deadlines given for completing a task, they must be prepared to work with new materials, to become part of the staff, as well as to fill out documentation. Practical training in school involves simpler, not particularly strict procedures, and in this regard it is far from a realistic production environment.”

After being employed by “Unior”, Miroslav was already well accustomed to getting up early and the obligations brought about by having a job, because he already saw and experienced all of that during work-based learning. Responding to the question of what it is like to have a job with 18 years of age, he says: “Most of my friends from primary school still have no jobs, and when I see them, I realize how lucky I was. I graduated from a good school, and was hired immediately afterwards, by a good company. Now I am independent, I earn enough for myself, and yet I am still young and all options are open, who knows where life will take me.”

However, even though he is living independently, and has enough free time for activities outside work, Miroslav is responsible enough to limit going out with his friends to weekends, because he needs to get enough sleep during the week. “The most important thing for a good welder is concentration at work. That means coming to the plant well rested, and leaving all problems at home”, advises Miroslav.

“When you have wings growing, you need a good flight instructor”

During the first day of work-based learning at the “Unior” factory, Miroslav was, as he admits, a bit uncertain because he did not know any of the older colleagues. However, he quickly became more relaxed and found new friends.

Dragan Živković, director of the welded structures program in this renowned company from Kragujevac that manufactures broaches and welded structures, says that at first the students looked like children

“I acquired useful knowledge, but also working habits”
who found their way into the plant by accident: “They did not know where things were, what certain machines were for, etc. However, they took their practical training very seriously and relatively quickly grew into quality locksmith-welders and mature people.”

This is confirmed by Ivan Jovanović, Miroslav’s instructor at “Unior”, who spent a lot of time with the students at the company during their school days: “When they came to us they were still children, their wings just spuring, and our task was to teach them to fly. I tried to establish a good relationship with them, and from this vantage point I feel like I was a good pedagogue. I approached them as equals, but also as a person with authority they must respect. I know this sounds contradictory, but I managed this by showing them that I am someone who can provide them with knowledge, safety and protection, but also a friend who is always willing to listen. In time, Miroslav and I became buddies, and now we see one another outside work, go to each other’s family celebrations, etc.”

The former student and his former instructor now have their inside jokes and customs, like buying one another candy bars when coming to work. Miroslav does not hide his satisfaction for being so well received by his colleagues and says he will make an additional effort at work, because “who wouldn’t want to continue working here”.

“Students took their practical training very seriously and relatively quickly grew into quality locksmith-welders and mature people.”

Dragan Živković, director of welded structures at “Unior Components”
“I have gained my self-confidence because of my job”

Nenad Džever (19 years of age)

Former student of the “Mihajlo Pupin” School of Electrical Engineering in Novi Sad

Completed the educational profile electrician

Employed at the “Energotehnika Južna Bačka” company in Novi Sad
When someone loves their work, they always want to get better at it. This could be the motto of Nenad Džever, a young man who, following his love towards the occupation of electrician, enrolled in the “Mihajlo Pupin” School of Electrical Engineering in Novi Sad in 2014. Since he was educated with elements of dual education, he went for work-based learning at the company “Energotehnika Južna Bačka” (EJB), where he was hired immediately after graduation in 2017. “I assume I got the job because I was a regular during practical training and interested in learning as much as possible”, Nenad says humbly.

Young people, particularly those just finishing primary school, can sometimes have unrealistic goals and ambitions, but real encounters with the world of labour and work-based learning in companies help them to realize whether the profession they chose corresponds to their idea of this profession or not. “In addition to realizing that this is the right job for me, during practical training I gained confidence, because I saw I could do more than I thought”, claims Nenad Džever. He did not find work-based learning at “Energotehnika Južna Bačka” difficult, but he was only fully satisfied once he was hired, because he got the opportunity to do even more dynamic work – to frequently go out into the field and work on even more complex tasks on transformer stations, requiring more thinking: “I like challenges, and that is why I gladly join whenever I hear of a problem to be solved. It is more interesting for me when I have to come up with ways to fix something.”

This is also confirmed by his former teacher Bogdan Pavlović, who was with his students
Keeping up-to-date with technological development

“Energotehnika Južna Bačka” works in engineering, construction and maintenance of energy facilities. According to Marko Kasper, manager of manufacturing and instructor responsible for work-based learning, this company decided to support the school be-

throughout their education at the company, not only in the manufacturing plant and training workshop, but at the same table in the staff canteen, trying to be a good pedagogue, but also a friend to his students in order to get to know them best. “We gradually recognized Nenad’s inquisitive character. During the first days with the company we noticed that if we gave him one task, he would find several ways to solve it”, says the teacher, and adds that this will help him in his future career, because there are layers to his work: “This educational profile covers a broad range of knowledge. Electricians have three main competences - they work on manufacturing electrical installations for all types of facilities, from residential to industrial facilities, they do repairs of household devices, and they are trained to maintain electrical equipment in industry. Children cannot acquire all this know-how in school, so it is good that they are provided with practical training in a company.” Bogdan Pavlović adds that educational institutions are unable to provide their students with the kind of expensive and modern equipment at the disposal of companies, but it is very important that employers realize they can have quality staff with minimum investment, and to cooperate with the education system.

“Our goal is to give young people the opportunity to stay in our country and to do work that will bring them pleasure.”

Marko Kasper, instructor at “Energotehnika Južna Bačka”

“I like challenges and that is why I gladly join whenever I hear of a problem to be solved. It is more interesting for me when I have to come up with ways to fix something.”

Nenad Džever

“I have gained my self-confidence because of my job”
cause of a deficit of electricians. “For decades we have been a partner to the School of Electrical Engineering, but only now has this cooperation been raised to a higher level. Students come to us for practical training during the second and third year, and we gain insight into their skills and abilities, and therefore can assess which of them will be a good fit for the company and will approach work responsibly. We hired four students from the first generation of electricians who passed the final examination, and we hope we will have the opportunity to hire students from subsequent generations as well”, says Kasper, elaborating that the final examination is implemented jointly by the school and company, trying to make it serious and to show the real knowledge of the young people. “We will continue to cooperate with the school, because we need electricians. They are in deficit throughout Serbia, because they are leaving to work abroad in large numbers. Our goal is to give young people the opportunity to stay in our country and to do work that brings them pleasure”, says Marko Kasper, expressing hope that the recently adopted Law on Dual Education will solve certain doubts that employers often have when receiving students in their working facilities, such as the amount and method of payment of reimbursements to students for work-based learning, as well as cooperation with schools. However, even before the adoption of the Law, “Energotehnika Južna Bačka” endeavoured to provide young people with the best conditions for learning, and thus, in addition to snacks and financial rewards for their achievements, they provided them with a separate classroom-workshop for training.

Kasper notes that, although they have sufficient professional know-how and skills, young people who complete this profile still need additional professional development, since this field is rapidly developing. The former student, now an employee of “Energotehnika Južna Bačka”, Nenad Džever, is aware of this, and says he will need to learn a lot more. “I have the impression that I am more agile and have more knowledge than my peers from other profiles, who did not have as much practical training. But that doesn’t mean I should stop learning. To be good in this field of work, you must love it a lot, so as to want to constantly get better at it. But I guess this is so in any field of work, if you want to be successful.”

“It is very important that employers realize they can have quality staff with minimum investment and to cooperate with the education system.”

Bogdan Pavlović, teacher of “Mihajlo Pupin” School of Electrical Engineering
“I am great at finding my way around the factory”

Ljubiša Dragojević (18 years of age)

Former student of the “Milenko Verkić Neša” Technical School in Pećinci

Completed the educational profile industrial mechanic

Employed at the "Robert Bosch" d.o.o. company in Šimanovci
Ljubiša Dragojević enrolled at the “Milenko Verkić Neša” Technical School in 2014 and is one of those who “broke the ice” at the time, deciding on a little-known occupation. After successfully completing his three-year dual education as an industrial mechanic, today he is an employee of “Bosch”, a giant in the production of automotive equipment. “My job is to supervise the work of machines controlling product quality”, Ljubiša explains the job of an industrial mechanic, consisting, apart from monitoring the operation of industrial machinery, of their maintenance and the mechanical processing of the simple parts they are made of.

Ljubiša heard about this occupation during eighth grade of primary school, at a presentation of the industrial mechanic profile. “People from ‘Bosch’ and GIZ came and told us what we would be doing during education, but also afterwards, when we found jobs. I liked what they told us, about learning not only in school, but also at a factory, and I decided to enrol in this profile”, Ljubiša recalls.

During first grade Ljubiša and his classmates learned through work in the school workshops, fully renovated and equipped through a public-private partnership
“Bosch” also demonstrated its intent to provide long-term support for the education of future staff through the readiness to provide financial reimbursement, meals and transportation for the students while they were attending work-based learning at the factory, thus providing additional motivation, and contributing to their healthy relationship towards work. As a result of active participation in the education of industrial mechanics, “Bosch” is gaining qualified workers, profiled in accordance with the needs of the company and ready to independently join the manufacturing process immediately upon graduation.

Motivation is a recipe for success

The “Bosch” supervisor for dual education, Marko Radović, is satisfied with the progress of former students, now employees. “We didn’t ‘swamp’ them with work, we gave them the amount of work-related tasks that they could handle with quality, without pressure. That is why they have gained useful and applicable knowledge that is of great help to them now”, says Radović.

This kind of attitude towards them by their future employer had a positive effect on these young people, still at the very beginning of their professional development. The headmistress of the “Milenko Verkić Neša” Technical School, Spomenka Rakić, recalls how motivated this generation was to go to “Bosch” for work-based learning.

项目之间，技术学校、皮钦奇市，“Bosch”和GIZ。第二年标志着在“Bosch”工厂，制造商的雨刷系统在Šimanovci。这是Ljubiša的第一次接触与工作的世界。“When I first came here, everything was strange, I could not find my way around this enormous space. However, after a while, I got to know the entire factory, now I know all its nooks and crannies, explains Ljubiša. He says that his colleagues, who came there for work-based learning during their education, now know the manufacturing departments of “Bosch” really well, because during work-based learning they were rotated through several posts to acquire diverse know-how in various parts of the facility and various control rooms.

“Bosch” was one of the first companies to become involved in the implementation of education with dual elements in Serbia. As a German company, they were deeply familiar with this system of education.

“I am great at finding my way around the factory”
“Part of the reason for the motivation were certainly the scholarships, meals and transportation provided during practical training, but I believe that they were not the deciding factors. It seems to me that the children have recognized the importance of the opportunity they were given – to work in a modern, well-equipped factory and to gain experience that will be important for them throughout their working life.”

Unlike many of his peers at 18 years of age, Ljubiša Dragojević has already had a certain, permanent job for almost a year. What changed in his life since he got his job? “Not much. I used to spend part of the day in school or in practical training here, at the factory, now I spend it all at work. I still have enough time for all the things that interest me. I spend my free time the same as my friends – going out and training. I play football at the ‘Hajduk’ club in Šimanovci, so we have two-hour trainings four times a week, and sometimes I play in matches”, says Ljubiša and adds that, regarding work, he would like to prove himself and one day become a foreman at “Bosch”.

“We didn’t ‘swamp’ students with work, we gave them the amount of work-related tasks that they could handle with quality, without pressure.“

Marko Radović, supervisor for dual education at “Bosch”
“School has prepared me for the responsibility of having a job”

Miloš Tatić (20 years of age)

Former student of the “Milenko Verkić Neša” Technical School in Pećinci

Completed the educational profile industrial mechanic

Employed at the “Robert Bosch” d.o.o. company in Šimanovci
Miloš Tatić is one of the ten young men, students of the “Milenko Verkić Neša” Technical School in Pećinci, who graduated as industrial mechanics in June 2016. July of the same year already saw all of them employed at the nearby factory of the “Robert Bosch” company in Šimanovci, where they attended work-based learning for two years. They are the first generation of students in the new educational profile of industrial mechanic, trained in accordance with a model unique in the educational system of Serbia. It involves three months of work-based learning at a company during the second year, and two three-month turns during the third year of school.

Miloš believes this model to be the most efficient, because he and his friends acquired enough theoretical knowledge that they could then apply in realistic working conditions at the company. Although their education made them competitive in the labour market, none of them will be sending their resumes to other companies, because they are happy with the working conditions at “Bosch”.

Responding to the question if adaptation to work was easier for him because his entire class was employed at the same company, Tatić says that he does not see his classmates too often, because they all work in different posts. He works in quality control of products manufactured at this factory. “I am in the laboratory, supervising the operation of the machines that test the quality of the wipers that leave the production line. Simply put, I monitor the results displayed by the machines and make sure..."
"My job is not physically demanding at all, but it has a high degree of responsibility and requires a lot of concentration at work."

Miloš Tatić

they are in accordance with our standards. If there are any problems, which rarely happens, my job is to stop the production line and call in experts to diagnose and remedy the issue", Miloš briefly explains his job. There is a widespread belief that graduates of three-year schools are faced with hard manual labour. However, Miloš says this does not need to be so: “My job is not physically demanding at all in that sense, but it has a high degree of responsibility and requires a lot of concentration at work.”

When they started working at “Bosch”, the former students were already quite familiar with the work processes, conditions and environment. In this regard, employment was not a big change for them. Still, as Miloš says, there is one key difference between having an employment contract compared to the period when you are on work-based learning: “It is responsibility. Nothing else has changed. We are already accustomed to the working conditions at ‘Bosch’, our colleagues are still nice to us and always willing to help, but now we are employed, and we place our signatures on each report on machine operation, which is a completely new experience for us. This means that we stand by our work with our full names”, says Miloš Tatić and adds that he does not find his new responsibilities difficult, because he is certain of the knowledge he gained during education.

Spomenka Rakić, headmistress of the “Milenko Verkić Neša” Technical School, is proud of the first generation of industrial mechanics, saying they did well during work-based learning at “Bosch”, where they were regular, diligent, and highly engaged. They constantly came up with new ideas for improving the manufacturing process, and some of their ideas have been accepted by older colleagues and supervisors. Interest in this occupation has grown within the municipality since the introduction of the profile of industrial mechanic at the technical school in Pećinci – an increasing number of children now want to enrol in this profile, but also an increasing number of companies want to take active part in their education. The headmistress notes that girls are also becoming more interested in this profile, which was not the case thus far with three-year technical profiles in mechanical engineering.

Three-year profiles offer good perspectives

In addition to having instructors at each production post to train the students, “Bosch” hired Marko Radović as supervisor for dual education. Radović completed pedagogical-didactic training for working with young people and is responsible for implementing work-based learning at the “Bosch” manufacturing plants. He appo-
ints students to certain learning posts, makes sure they master all teaching units envisaged by the curriculum and is in constant communication with the teachers at the school. Radović says that each generation is unsure when first coming to the company: “They come in a group, they are confused, don’t even know what question to ask us, but once the initial surprise wears off, they relax and become part of the staff. In time they grow into equal colleagues with our employees, because practical training provides them not only with professional know-how, but the ability to work in a team and master business communication skills.” Young people, their supervisor says, are more open and have fewer prejudices than adults, making it easier to acquire new knowledge. “Very quickly, almost without noticing, after a mere two years of coming here, we realize that they have become adults. Once they graduate and become employed, they are already responsible, serious and mature people”, concludes Radović.

Example of Miloš Tatić also confirms this. He wants to continue working at the “Bosch” company, but is also thinking about enrolling at a college or the Faculty of Mechanical Engineering. He believes he can study while retaining his job, but even if he does not manage this plan, he will be satisfied because, as he says without any false modesty, he has already achieved a lot. He noticed that he is more responsible and has better working habits than his peers who did not have an opportunity to be introduced to the world of work during education.

“Girls are becoming more interested in this profile, which was not the case thus far with three-year technical profiles in mechanical engineering.”

Spomenka Rakić,
headmistress of the
“Milenko Verkić Neša” Technical School
“A job that fits me”

Miloš Kokir  (18 years of age)

Former student of the “Milenko Verkić Neša” Technical School in Pećinci

Completed the educational profile industrial mechanic

Employed at the “Robert Bosch” d.o.o. company in Šimanovci
Although the entire first and a good portion of the second generation of industrial mechanics from the “Milenko Verkić Neša” Technical School is now working at the “Robert Bosch” factory for the manufacture of windshield wiper systems in Šimanovci, few of these young people could have assumed a few years ago what their professional future would hold.

One of them, Miloš Kokir, heard about this profession when he was completing primary school in Pećinci, but even after detailed online searches he did not clearly understand what this job entails in practice. However, when he heard that, if he enrolled in the industrial mechanic profile, he would attend work-based learning at a renowned German company, he had no more doubts and in 2014 he enrolled in this profile at the Technical School in Pećinci. Now, nearly 4 years later, having completing a three-year school and with a job at “Bosch”, he says he has no regrets.

“Before I chose this profile, I read up on what it means to be an industrial mechanic, but I still had no clear idea of what I would be doing, so I tried to imagine what my working day would be like. It turned out that I imagined correctly. During the very first days of practical training at the factory, I realized what my duties are and how well they correspond to my abilities”,

| Miloš Kokir |
Miloš Kokir only has words of praise for the educational model he completed: “I really think I learned a lot, not just from books, but also during practical training. I was helped by teachers in school, instructors, as well as other employees here, at the factory. They wanted to explain as much as possible to us, because they knew that one day we would be part of their team”, says Miloš and hopes this effort paid off for his current colleagues. “I think it did, because I see they now view us as equal staff members and entrust us with important work tasks”, he says.

Although he has a job, Kokir says he has quite enough time for hanging out with his peers who, as he says, mostly do not have as much freedom to hang out as he does. He says it is quite enough time for him to focus on his work and other activities such as playing basketball. “The important thing is good organization, and you can do everything”, this young man says confidently.

A good decision and chance for further education

Responding to the question of how he knows that he is good at his job, Miloš Kokir says: “Being a good industrial mechanic requires dedication – everything can be learned during practice at the company, but the main precondition is having the will for personal development. When I came to ‘Bosch’ for practical training, my main motivation was the desire to learn something and be useful. Now, when I am employed, I am proud to earn my own money. I have the impression that I am far more mature than when I enrolled in secondary school and opted for the occupation of industrial

Miloš Kokir says that older colleagues consider former students equal staff members and entrust them with important work tasks.
mechanic. Fortunately for me, this turned out to be a good decision.”

This maturation of teenagers into adults has also been actively observed not just by the people in “Bosch”, but the teachers and school headmistress, Spomenka Rakić. She believes her former students grew into experts precisely because they were given the opportunity to learn through work at a serious company such as “Bosch”. “They had the opportunity to acquire new skills on the kinds of expensive machines that no school in Serbia has. After three years of education they have mastered a craft. Furthermore, those who want can continue their education”, says the headmistress.

Miloš Kokir is also thinking about further education in the future, because a university diploma and the title of engineer would open new opportunities for promotion at the company he works for.

“During practical training each student moves through several departments and we monitor how well they do in each. Based on this and their wishes we offer them fitting jobs at the company.“

Vladan Doljančević, supervisor for dual education at “Bosch”
The champion of Serbia in MAG welding

Zoltan Kuti (18 years of age)

Former student of the “Ivan Sarić” Technical School in Subotica

Completed the educational profile locksmith-welder

Employed at the “Montavar Metalna Lola” company in Belgrade
Zoltan Kuti is only 18 years old, yet he can already boast a rich professional and life experience - he graduated from the "Ivan Sarić" Technical School in Subotica, in the locksmith-welder profile, and upon passing his final exam he got employed by “Siemens”, a well-known German company where he attended work-based learning during secondary school. He is currently employed in Belgrade, at the “Montavar Metalna Lola” company, working on the manufacture of welded steel structures and prefabrication and assembly of pipelines and processing equipment, with most of the product range intended for export.

The management of “Montavar”, a company with manufacturing plants in the Belgrade’s settlement of Železnik, immediately recognized the potential of the young man from Subotica. Aleksandar Stojanović, commercial manager at “Montavar”, says they were very much surprised when such a young, yet already experienced welder applied for testing: “He was the best in the testing and we immediately hired him. It even turned out that he needed no additional training, which is usually necessary in our practice.” This company, constantly in search of new staff, holds welder trainings at its training centre. However, according to Stojanović, no matter how comprehensive the training, one can always notice the difference between people who have been re-qualified and those coming from vocational schools. "Educated welders have a good theoretical foundation, which is very important in this line of work", he notes, and adds that it is for this reason that a diploma from the Technical School represented an additional plus for Zoltan in the recruitment process.

Zoltan himself says that he learned a lot during his education, particularly during
work-based learning at “Siemens”, where he started his career. However, he applied for the call issued by “Montavar” because of the opportunity to do different types of welds and, if he desires so, to go abroad, since this company occasionally rents their staff for indefinite periods to foreign companies, mostly German and Italian.

Responding to the question of how a very good student ended up enrolling in a three-year profile, Zoltan says: “I always knew this was the work for me. When I was younger my neighbour let me weld, and told me I had a talent for it. I had very good grades in primary school and I could choose where to enrol, but I decided for this three-year profile. When I started practical training at ‘Siemens’ I improved my success in school, so I completed the third year with top grades. In the meantime I attended welding competitions and realized that this was my life calling”, recalls Zoltan, who continued to compete even after graduation. He won a decisive first place in the MAG category at the national competition “Young Welder 2018” in Belgrade, thus qualifying directly for the World Welding Championship to be held next year in China.

In addition to continuing to display his skill at competitions, Zoltan’s goal is to complete more courses and become a specialist welder, giving him the opportunity to do control of final products, supervise the work of other welders and hold trainings. If someone was to offer him to become an instructor for students on work-based learning at a company, he says he would gladly accept because, as he says, “as a former student I know best what was the most useful for me, and what was lacking”.

“All the theoretical know-how is useless unless you can apply it in practice.”
Zoltan Kuti

All the theoretical know-how is useless unless you can apply it in practice.
Zoltan Kuti

The champion of Serbia in MAG welding
Only a responsible person can be a good welder

Responding to the question how much work-based learning at a company meant for him during school, this young man says that for his profession this is the best way to learn, because “all the theoretical know-how is useless unless you can apply it in practice”. He observed his older colleagues at work and, as he says, “stole their trade”. To be a good locksmith-welder, he says, it is not enough to have a calm and precise hand: “First, one must be a responsible person who, in addition to welding, cares about the other operations, such as preparing for work, or processing and cleaning the welds. This job requires you to be dedicated to details”.

Because of his mature way of thinking, and partly because he is the youngest of his colleagues, in the mere three months he has been with the company, Zoltan has become a favourite among his colleagues.

They accepted him as if he were in the company for years, and even helped him find an apartment when moving from Subotica to Belgrade. They were lucky and the search for accommodation did not last long. The process of moving to a big city did not present him any problems. “It was my decision and I implemented it the way I wanted. One mitigating circumstance was that the company decided to grant me additional funds to rent an apartment, but also the fact that I make enough money to be able to regularly visit my parents in Subotica and my girlfriend, who is studying in Novi Sad”, says Zoltan and adds that the greatest novelty brought about by the change of job is living in a city of two million people. When discovering his new environment, he is accompanied by colleagues from the company, joining them after work sometimes to go to nearby lake Ada Ciganlija, for drinks, or to Kalemegdan fortress for a walk. Considering his innate communication skills, it was not difficult for Zoltan to create a new circle of friends with whom he is now acquiring new experiences in the “city that’s never boring”.

“Educated welders have a good theoretical foundation, which is very important in this line of work.“

Aleksandar Stojanović, commercial manager at “Montavar Metalna Lola”
Facts and Figures

German Development Cooperation project "Reform of Vocational Education and Training in Serbia"

The project is financed by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in partnership with the Ministry of Education, Science and Technological Development of the Republic of Serbia.

- A model with elements of dual education has been developed. In addition to classes in school, it implies also work-based learning in companies, with the support of instructors trained to work with youth. Based on the experiences made in the implementation of this model, a national dual education model has been developed.
three-year technical profiles, modernized with the support of the project, are being implemented according to the dual education model:

- Locksmith-welder
- Industrial mechanic
- Electrician
- Mechanic for motor vehicles
- Fashion tailor
- Electro-fitter for networks and installations.

Around 2700 students are being educated in these 6 profiles implemented according to the dual education model.

52 secondary vocational schools in Serbia are involved in the project.
Around 200 companies are currently actively cooperating with project schools by enabling their students work-based learning in their production facilities.

312 students successfully passed final exam in profiles supported by the project, 204 of them got employed.

Staff responsible for design and implementation of the dual education model have been trained to implement the updated teaching and learning contents.

The project is implementing activities with the aim to improve inclusion of students from disadvantaged groups into secondary VET and profiles implemented according to the dual education model.
In addition to the Ministry of Education, Science and Technological Development of the Republic of Serbia, cooperation with other educational institutions, Serbian Chamber of Commerce and Industry, as well as international organizations working on introduction of dual education has been established.

3 public-private partnership agreements were signed with the aim of defining the cooperation between the signatory parties on their joint assignment – providing the local economy with the qualified staff and enabling young people to find employment faster.

The project supported development of the Law on Dual Education and respective by-laws. Many aspects regulated by these documents draw on the experiences made during the project implementation. The Law has been adopted by the Serbian Parliament in November 2017 and will come into force from the school year 2019/20 onward.
ABOUT THE PROJECT

Title: Reform of Vocational Education and Training

Commissioned by: Federal Ministry for Economic Cooperation and Development, Germany (BMZ)

Implemented by: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Partner: Ministry of Education, Science and Technological Development of the Republic of Serbia

Duration: April 2013 - December 2019

The project objective is to improve the offer of inclusive demand-oriented vocational training in technical professions, as part of the formal VET system, by introducing elements of dual training.