



FINAL REPORT ON PROJECT IMPLEMENTATION

Combined Learning Academy project

The final project implementation report presents the achievement of the project's indicators and impacts.

The main objectives of the project were achieved

OBJECTIVE 1: Develop a blended learning model for secondary vocational education

A blended learning model was developed or complemented, which effectively uses a digital learning platform and developed digital tools for its implementation.

Combined education, also referred to as hybrid or blended education, is an approach to teaching and learning that combines elements of traditional face-to-face classroom education with distance learning supported by online learning technologies. Live learning can take place in the classroom or online via a virtual classroom.

Students often use online learning technologies alongside traditional textbooks, and teachers use tools to connect more effectively with students and provide immediate feedback.

OBJECTIVE 2: Teacher training, pilot implementation and testing of the new learning model

In October and November 2023, live training sessions were held in seven school centres across Slovenia under the T4.3 (Training teachers to integrate 21st century skills and competences into professional education and model implementation) strand.

The training was delivered by the project partners. Each training started with a presentation of the project, its aims and objectives. This was followed by a presentation of the materials: content, functions, tools.

The multipliers who participated in the training programme demonstrated the use of the materials in the blended learning model with concrete examples, alongside the selected materials. Part of the programme was designed to give the trainees time to practice working with the materials, while strengthening their digital competences.

The last part of the training focused on 21st century competences, which were presented through demonstrations and practical exercises.

In the framework of Strand T4.4 (Pilot training of vocational trainees), students were also invited for training and pilot training in the school centres where the teacher training was



carried out. At the end of the training, they had the opportunity to give their opinion on the teaching model and materials and to suggest improvements to the materials.

Teachers present at the training in October 2023 who expressed an interest were invited to participate in the pilot training or testing of the learning model using new teaching practices and the use of digital tools and new digital materials in practice.

The testing of the model took place between November and January 2024.

34 teachers responded. They completed an evaluation questionnaire assessing the materials and their usability in the blended learning model.

OBJECTIVE 3: Inter-institutional networking and exchange of knowledge and good practice in secondary vocational education

Institutional integration in the sense of partnership between organisations in the field of SSI and engineering professionals took place at several levels:

1. networking between the project partners: business representatives (Chamber of Commerce and Industry, Rokus Klett Publishing House, Gyldendal Publishing House), experts in secondary vocational education (CPI), academia (FS) and education professionals (Novo mesto School Centre);

2. networking with companies in the field of mechanical engineering, which was carried out in the framework of five focus groups organised by the project partners in March 2023. We received a lot of really good suggestions and recommendations from the participating companies. 60 representatives of different companies participated. Poclairn Hydraulics d.o.o. Žiri; • Itas Cas d.o.o. Kočevje; • Yaskava d.o.o. Ribnica; • Eti Izlake d.o.o.; • Qtechna d.o.o. Krško; • Kovis d.o.o. Brežice; • BSH d.o.o. Nazarje; • Odelo GmbH Prebold; • Virs d.o.o. Lendava; • Enekom d.o.o. Škofja Loka; • GKN Automotiv d.o.o. Zreče; • GZS Združenje za kovinsko industrijo; • LTH Castings d.o.o. Škofja Loka; • Arcont d.d. Gornja Radgona; • TBP Tovarna bovdenov in plastike d.d. Lenart v Slov. goricah; • Mahle Electric Drives Slovenija d.o.o.; • Eta Cerklje d.o.o.; • Gorenje orodjarja d.o.o. Velenje; • Plut d.o.o. Dol pri Ljubljani; • Unior d.d. Zreče; • Papirnica Vevče d.o.o. Ljubljana; • Gostol Gopan d.o.o. Nova Gorica; • Nafta Strojna d.o.o. Lendava.

3. networking with education professionals in Norway: a study visit was carried out to transfer knowledge and good practices from secondary vocational education in Norway. Based on the feedback and the knowledge transfer with the Norwegian partner, we have developed the design of a learning model, i.e., we have identified the most appropriate learning approaches, strategies and teaching methods, including digital tools.



Direct impact indicators have been achieved

	Plan	Plan Achieved
Number of peer learning activities implemented	9	13
Number of participants in peer learning	60	316
T1 1.1	20	215
T3 1.1	20	26
T4 2.1	20	78
Number of multipliers providing training to teachers in the use of teaching models and methods	3	26
Number of staff members involved in the development and testing of teaching models	30	50
T2 1.1	15	16
T4 1.1	15	34
Number of trained practitioners	12	78
Number of students involved	60	146
Number of institutions using new learning models, methods and strategies	6	7
Number of intellectual impacts generated through institutional cooperation	7	8

Target groups of the project

1. Primary target group

The primary target group of the project were professional teachers in secondary vocational education in the field of mechanical engineering in school centres; they were involved in the project as multipliers, trainees, testers of teaching models or authors; some of them participated in all roles.

Number of multipliers providing training for teachers in the use of teaching models and methods	3	26
Number of staff members involved in developing and testing teaching models 3	30	50
T2 1.1	15	16
T4 1.1	15	34
Number of trained practitioners	12	78
Authors of digital materials		7

2. Secondary target groups



The second priority target group was students of secondary vocational education in mechanical engineering. They were involved in the following project activities: testing the blended learning model, the developed digital tools and interactive learning materials.

	Plan	Plan Achieved
Key results achieved	60	146

Key results obtained

- Exchange of good practices, including the transfer of knowledge from the Norwegian education system to the Slovenian context (as a result of a study visit to Norway).
- Network of institutional partners established.
- Combined learning model for digital teaching developed and digital platform upgraded to support implementation and use of digital tools.
- Involvement of teachers of professional subjects in mechanical engineering as multipliers, trainees, testers of teaching models or authors.
- Interactive teaching materials developed (6 teaching materials, 2 teachers' guides).
- Evaluation and implementation of the materials in a real environment.
- Modular design of the platform to allow re-use of the content both in the context of the Secondary Technical Education (SSI) in Mechanical Engineering, as well as in other professional fields and educational programmes.
- Upgrading the digital platform with new functional tools.
- 9 peer learning activities implemented.
- Trained teachers and multipliers.
- Pilot implementation and peer learning activities carried out in 7 school centres in Slovenia.
- Promotion of the project through digital media, website and various meetings. Publication of information about the project and project funders in various media.
- Exchange of good practices, including the transfer of knowledge from the Norwegian education system to the Slovenian context (as a result of a study visit to Norway).

Learning materials developed to support the blended learning model

We have developed 6 teaching materials for teachers and students:

1. Computer-based technologies for the Mechanical Engineering Technician programme,
2. Spatial modelling and documentation preparation for the Mechanical Engineering - SolidWorks programme,
3. Spatial modelling and documentation preparation for the Standing Technician programme - Creo,



4. Polymers (plastics processing),
5. Machine elements,
6. Preparation of a machine product - shaft: an example of a project work on the preparation and production of a product for the vocational baccalaureate, supported by a combined learning model.

The materials include:

- the professional content prescribed by the catalogues of skills, which also contain consolidation tasks,
- additional content in mathematics and physics,
- audio-visual content,
- a module for teachers (learning pathways),
- a tool for testing students' knowledge (interactive tasks),
- a self-evaluation tool for students.

Supporting the project principles

Shared values

The blended learning model is based on the principles of inclusive education, which means that it enables all learners (regardless of cultural or socio-economic background or gender) to reach their full potential through quality mainstream education accessible to all in the form of digital materials.

By adapting the platform, it enables education for learners with special needs. It provides feedback on progress to all students individually through tools to monitor their progress, which is a welcome feature for all students.

By offering digital tools, the project provides teachers and educational institutions with various forms of support in implementing inclusive education.

The learning model promotes shared values in secondary vocational education through the acquisition of 21st century skills and competences, which is also the focus of two handbooks.

Principles of good governance

The design of the learning model is based on the equal participation of the project partners (educational institutions and teachers, academia, business, public institutions), who work together to develop the model according to their needs, such as labour market needs, the requirements of the school-leaving examination or baccalaureate, relevant content for employers, and the required competences and skills of teachers.



The partners have worked intensively together and supported each other in the management of the project. The cooperation was transparent and respectful of the law.

Sustainable development, long-term economic growth, social cohesion and environmental protection

The project was carried out as far as possible in an on-line format and demonstrated a positive attitude towards promoting sustainable development. The orientation of the project and the presence of business stakeholders in the development of the project supports the development of human resources in the broad field of mechanical engineering, thus ensuring a skilled workforce and, consequently, long-term economic growth.

The project makes a major contribution in terms of social cohesion, as it supports investment in the development of people's competences, skills and capacities, which are essential to ensure Europe's long-term competitiveness and consequently to provide citizens with more and better jobs. At the same time, the project has an impact on the modernisation of education and training systems through the development of a new learning model and the training of staff in digital learning.

Gender equality

Gender equality was addressed by the project from two perspectives. In all partner institutions, both genders were equally involved in all phases of the project, both in the planning and implementation of project activities, as well as in project management activities.

The second aspect of gender equality addresses in particular the under-representation of women in technical fields, which is particularly pronounced in mechanical engineering. We wanted to achieve at least 33% female participation in project activities and to promote the employment of women in mechanical engineering. Both genders were equally invited to participate in the project activities (training, education).

Despite great efforts to achieve at least 33% participation of female professional staff in project activities, we did not achieve this percentage.

The teacher training sessions, which took place in 7 school centres, were attended by 78 people, 67 of whom were male and 11 were female (16%). The student training session was attended by 146 participants, 2 of whom were female (2%). The model testing session was attended by 34 teachers, 4 of whom were female (12%). The professional conference, however, had a higher representation of women among the participants, with 31 of the 100 participants (31%). 31 women (31%) were present. 31 women (31%) participated in the training session.