The project Schools 4.0 final stage was all about the effort being put in the review and translation of the E-Book and in the preparation of the final dissemination event for its launch that took place in Oporto, Portugal, on 14 October 2021.

The effort and commitment from partners in the development of the E-Book throughout the pandemic with so many uncertainties and constraints reinforced how important the theme of VET schools in the 21st century is, and the need to reflect on the impact digital technologies have on the learning process and what tools are available for teachers and examples of successful practices.

As mentioned in the previous edition, this E-Book demonstrates and will demonstrate how the 21st century schools define the teaching and learning processes, the construction of each student's life project, scientific knowledge and what technologies can be used to enhance the learning process, in different pedagogical contexts, in order to develop the curriculum of autonomous, flexible, and contextualised form and the teaching process based on learning based on integrative projects, are the basis of the innovative reference.

This issue of the newsletter is fully dedicated to the E-book and the Final Conference during which the digital publication has been presented.
On 14th October 2021, the project Multiplier Event took place at the Catholic University of Portugal, in the Carvalho Guerra auditorium. The event was conceived to be a public presentation of the Intellectual Output (IO), resulting from project nº 2018-I-PT OI-KA 202-O47463, part the Erasmus+ Program KA2, entitled “Schools 4.0 - Innovation in VET”, of which the Escola Profissional Amar Terra Verde has been the coordinator.

The event hosted many speakers, Professor Doctor Carvalho Guerra; the Assistant Secretary of State and of Education, Doctor João Costa; the Director General of DGestE, Doctor João Miguel Gonçalves; the Coordinator of the “PISA for Schools” project in Portugal, Professor Doctor Gonçalo Xufre; the representative of the Erasmus+ National Agency and technician of the project in question, Doctor Ana Cunha; the Board Secretary of EFET, Doctor Marta Almeida Santos and the Member of the European Parliament, Engineer José Manuel Fernandes, among other individuals.

The welcome reception was attended by the President of the UCP Porto Regional Center, Professor Isabel Braga da Cruz and the EPATV General Director, Doctor João Luís Nogueira, who expressly thanked all the participants and those involved in the execution of this work, namely, to the National Agency Erasmus+ for the opportunity and financing of this IO, recognised as innovative and of interest for the construction of a school of and with a future.

Representatives of all partners were present and show-cased their good practices, except for the partner from Greece who had its intervention online, as the event was broadcasted online to more than 200 previously registered participants, and simultaneous with translations in Portuguese and English.

All participants admired the developed work, during the project, that resulted in the E-book presented, which was enriched with illustrations by Deesigner Olga Neves. The General Director of DGestE, responsible for the presentation of the E-book, also mentioned that he found in the work the “18 Senses for the education of the future”, a work that will be included in the IO, being recognised as an excellent complement to the message which is intended to be shared nationally and internationally.

It should also be noted that the project was made up of four Portuguese vocational schools, from the “Rede Escolas 4.0”, the European partners from Denmark and Greece, and EFET from Belgium (European association of professional schools), having as scientific and pedagogical consultancy two researchers from the Human Development Research Center (CEDH) and consultants from the Support Service for the Improvement of Education (SAME), from the Portuguese Catholic University, Porto, specifically Professor Joaquim Azevedo and Professor Luisa Orvalho.

The objective of this transnational partnership, for 3 years and executed in the middle of the pandemic, was to co-build and publish an Intellectual Output (IO), in Portuguese and English,
in digital support (e-book), which constitutes a theoretical and practical reference innovative to help different stakeholders to rethink and identify the changes to be introduced in pedagogical, organisational and evaluation practices, in order to move from a traditional school, with only face-to-face classes, to a 21st century school, "SCHOOL 4.0".

This document will be available to all interested parties through open sharing on social media and on the European Erasmus+ network platform.

The Schools 4.0 partner EfVET presented the e-book at the final Conference in Porto

The international event was held in a blended format from the Auditório Carvalho Guerra at the Catholic University of Porto on October 14, 2021. It was introduced by the inspiring quote of Nelson Mandela: "Education is the greatest tool we have to transform the World".

Many were the speakers and panellists, both national and international, within and outside of the partnership who highlighted the importance of innovation in the current school system, especially after the challenges and pressures brought by the Covid-19 pandemic which emphasised even more the need of innovation and digitalisation in Education and Vocational training.

One of the important parts of the Conference was also the presentation of the e-book - conceived in the framework of the project - by Marta Santos, Secretary to the Board of EfVET, in the content, and Olga Neves, Illustrator of e-Book, in the illustrations, presented by Maria João Proença. The Intellectual Output (IO) resulting from this project, materialised in digital e-Book format (and also available in printed document), intends to be...
an inspiring working tool to mobilise all educational agents in the dynamics of innovation and in the challenging process of continuous change towards excellence in vocational education and training.

This e-book, one of the resulting products from the Action Research process, is a pedagogical reference of innovation for professional education in the 21st century, financed by the 2018-1-PT01-KA202-047463 project of the Erasmus Programme which was overseen by two UCP expert investigators and CEDH researchers, of national and international recognition, Professors Joaquim Azevedo and Luisa Orvalho, that led this venture and conducted the elaboration of the conceptual framework related to Part I.

Methodological procedures

From an empirical point of view, a qualitative methodology has been chosen, the Appreciative Inquiry (AI) model. The methodological device for appreciative action-in-action investigation, as shown in Figure 1, is characterised by a cycle of 5 phases: Define, Discovery, Dream, Design, Delivery / Destiny.

The 3 main pillars of VET Industry 4.0

The 3 main pillars of a VET 4.0, capable of meeting the challenges of industry 4.0 (the name for which the 4th industrial revolution was coined at the Hannover fair in 2011 in Germany) are based on scientific, technical and social and emotional skills.

1st Pillar: Information Analysis and Data Set Interpretation are key learning areas in this century’s Curriculum

2nd Pillar: Informatics and Computational Programming are the basis of digitalisation

3rd Pillar: The social and collaborative component of digitisation

The school under pressure from innovation and digitalisation

In this chapter, an approach is made to the main challenges that are putting a lot of pressure on school education and training to change their old educational paradigms, especially in these times of the COVID-19 pandemic. There is a new roadmap for innovation and change underway, in emerging trends to global challenges, such as: the new skills required of all citizens, and in particular of trainers; the new teaching, learning and assessment environments facilitated by the technological revolution and the digitisation of the school organisation; another more open and flexible curriculum management; concern in the production of higher quality qualifications; school and professional guidance for mentoring, counseling, recruiting of candidates and students in vocational education.

How did VET teachers, schools and our countries react to the Covid-19 challenge?

School closures in all countries to contain the spread of COVID-19 hindered education and increased inequality of opportunities of millions of students across the globe. UNESCO, in March
2020, shared COVID-19: 10 Recommendations to plan distance learning solutions to ensure that learning remains uninterrupted during this period.

1. Examine the readiness and choose the most relevant tools.
2. Ensure inclusion of the distance learning programmes.
3. Protect data privacy and data security.
4. Prioritise solutions to address psychosocial challenges before teaching.
5. Plan the study schedule of the distance learning programmes.
6. Provide support to teachers and parents on the use of digital tools.
7. Blend appropriate approaches and limit the number of applications and platforms.
8. Develop distance learning rules and monitor students’ learning process.
9. Define the duration of distance learning units based on students’ self-regulation skills.
10. Create communities and enhance connection.

In Part II, the theoretical and conceptual framework of the IO is illustrated with examples of good practices and case studies carried out in schools (based on documentary research) designed, implemented and tested by the different partners, in classroom and on-the-job training contexts, complemented by narratives, testimonies and recorded interviews of experts, entrepreneurs and graduates of the VET system.

The presented “cases” are examples of good practices/ Case-studies /Innovative practices from all partners, and Life stories of VET reference persons. Professional and personal narratives of students and other stakeholders.

In summary, it is expected that this pedagogical tool can contribute to stimulate and implement innovative processes and experiences of disruptive change, which will be further developed in Part II, that mirror the guidelines of National and European policies present in the curricular documents of the participating countries.

Within the autonomy, curricular flexibility and diversity of educational projects that characterise vocational schools is it expected that these mechanisms serve as a tool to help teachers, students and all internal and external stakeholders to reconceive original, suitable educational and training models, so that the youth can face the current challenges of the 21st century outlined in the “Strategic Vision for the Recovery Plan of 2020/2030” with more resilience, ensuring the transition to a Green and Digital Europe and a modern, more sustainable economy.

Vocational Education Teachers' training in multiple intelligences

A good practice from Lifelong Learning Center “DIAVIMA” (Greece) presented online by Katerina Aravantinou-Fatorou in Multiplier Event on October 14, 2021

In 1983, Howard Gardner published the Theory of Multiple Intelligences in his book "Frames of Mind". There, Gardner recognises eight different intelligences and defines them as independent mental abilities that are distinguished in basic human mental functions. He has been revising his theory ever since. Teachers all over the
world have acknowledged the importance and values of the Multiple Intelligences Theory, and through all these years many educators have developed and proposed a number of different educational strategies to implement the theory in the classroom.

However, for many teachers it is still not clear how to implement the theory in the classroom. So, the aim of this seminar was to make teachers aware of Multiple Intelligences theory and to enable them to apply it in the classroom. The objectives were for teachers to understand, accept and appreciate the theory of multiple intelligences, describe the eight types of intelligence, explain the basic points of the theory and develop positive attitudes to apply multiple intelligences theory in their teaching. For this purpose, we organised a face-to-face training program in which 20 teachers of vocational education participated.

The training was organised in three parts, each of which contained a number of innovative activities using new technologies, also innovative techniques, as flipped classroom, team work (the teachers worked in four teams of five), brainstorming, case study, discussions and debates. At the end, teachers evaluated enthusiastically their training as excellent, and they planned to apply Multiple Intelligences Theory to their teaching and to continue their learning about multiple intelligences.

A project about the school of the future

A project about the school of the future has almost come to an end.

The project Schools 4.0, is a project investigating how schools will have to relate to the new, digitised learning environments as well as the target groups which is changing rapidly.

The participating schools had set out to develop and share new digital learning methods that address these new challenges.

In the middle of the project, we were overtaken when COVID-19 closed schools across Europe and teachers fabulously converted their teaching...
'overnight' to online teaching. The project then included experiences with online teaching - and the experiences we all suddenly had.

What was good at this way of teaching? And what did not work? Which target groups seem to thrive under the new circumstances and which limped afterwards?

In this project is also taken some of the softer skills into consideration offering experience from extensive work with tutoring, coaching and mentoring.

In an online world, it quickly became apparent that these features were exactly some of these 'soft' values we all lacked. We should be proud of our tutorial schemes, the tutor and mentor function, but also the study counsellors and the internship consultant function are experiences we can share.

ACKNOWLEDGEMENTS

The IO - Intellectual Output resulting from this project, materialized in digital e-Book format (and also available in printed document), intends to be an inspiring working tool to mobilize all educational agents in the dynamics of innovation and in the challenging process of continuous change towards excellence in vocational education and training.

Project No. 2018-1-PT01-KA202-047463- Schools 4.0 - Innovation in Vocational Education was conceived and started before the unforeseen Covid-19 pandemic, which, without warning, and or preparation, had strong impacts, one of them being emergency remote learning. However, every time I reread the content of this e-book, I recognize its timeliness, relevance and innovation; and even though we are already talking about Industry 5.0, and consequently about "Schools 5.0", I have no doubt that there is still much to be changed today within the school environment.

Becoming the coordinator of this ambitious project has given me an unforgettable experience, both personally and professionally. Reflecting on how much I learned, on how much I witnessed work done by all the participants, gave me a sense of privilege and a lesson in collaborative work that I need to highlight here.

Thank you all very much! For what you have contributed to the project and for making it an example of networked and shared learning whose knowledge is now freely available.

As project coordinator, and on behalf of EPATV, I would like to express my sincere gratitude and recognition to the entire national and international work team that over these three atypical years has been committed and reinvented to bring the project to a successful conclusion. At the risk of forgetting someone (for which I apologize), I must mention the EPATV teaching team (Pedro Arantes, António Cunha, José Dantas, Clara Sousa), among many others who, under the guidance of Pedagogical Director Sandra Monteiro, shared the good practices of this project; to teachers Laura Rocha, Joana Macedo, Clara Lopes and Marina Cruz from Escola Profissional Raul Dória who started the project, but had to leave it halfway through to embrace new challenges while always providing input when requested; to teachers Érica Marques and Daniela Guimarães from the same school, who replaced them and with the same "spirit" ensured the continuity of excellent work; to Maria João Proença from EfVET for her professionalism and compassionate attitude which greatly contributed to the European vision of vocational training; to Leonor Fragoso from EP Rio
Maior, who left the project to embrace the public cause with responsibilities in the municipality of Rio Maior; to all the school directors; to all the partners, teachers, researchers, entrepreneurs, stakeholders, graduates and former students, private and public entities that participated in the collection of significant data for the completion of this project; to the teachers and directors of Koge Business College that made possible the realization of the excellent workshops in Denmark; to the teachers, trainers, and technicians who shared their best practices and methodologies in online meetings, always so dynamic and productive; to the illustrator Olga Neves (specialized in children’s and youth literature) for her commitment and for having accepted this challenge in such short notice, conveying the conviction that Art can be a means of transmitting Knowledge; to LabGraf for the collaboration in the graphic design of this e-book, among many others, who even if not named had a relevant impact on this final product.

And with everyone in my heart, I must express a special thanks to Professor Luísa Orvalho who "put up with me" and above all exceeded her role as consultant and researcher, always focused on the final result of this IO that is now presented here; to Professor Joaquim Azevedo who, in the midst of so many and countless requests of high importance, always had "time" to give us his wise and enlightened opinion; to the whole Erasmus+ National Agency team, especially to our technician Ana Cunha, for the trust she placed in us by promoting the flow of knowledge that we all benefited from participating in the transnational experience and to the Erasmus+ Program, which without the respective funding would not have been possible to carry out this project.

Finally, as this is a dynamic pedagogical reference, which has been constantly enriched throughout the process to achieve its objectives (far beyond those stated in its application), I would like to challenge all those who wish to put it into practice, in this new phase of dissemination, to promote its implementation and to send us feedback regarding the results, suggestions for new practices, constructive criticism, and improvements capable of involving and committing everyone in the continuous improvement of education and training for the 21st century, giving sustainability to the work developed by this transnational team, through the email epatv.schools4.0@gmail.com.

Since the Greek origin of the word "symphony" refers to different instruments that harmonize to achieve a result, the multiplicity of voices that make themselves heard will be the guarantee that it was worth it!

I hope this IO contributes to an education and a professional training for all, where each one is seen as a young "bearer of the future", as a subject of their duties and responsibilities, as a fully committed citizen.

Good work and enjoy!

The Project Coordinator, Paula Fernandes - EPATV
July 2021

Pictures of the Multiplier Event: link

Partnership

Escola Profissional Amar Terra Verde (EPATV)

Escola Profissional Amar Terra Verde (EPATV) is a vocational school that was created in 1993 from a tripartite agreement between 3 town halls: Amares, Terras do Bouro e Vila Verde. Nowadays, it is a private institution under the supervision of the Ministry of Education.

The vocational school has around 800 students and 90 teachers and it is located in Vila Verde, a rural area in the north of Portugal, strongly low qualified and whose population struggles with social and economic problems, mainly due to unemployment, low formal qualifications, and life conditions. Included in the VET school, we have a
Lifelong Learning and Adult Education Unit, especially dedicated to the Recognition, Validation and Certification of Skills since 2006 and with more than 40,000 hrs of training courses addressing adults (CVET). We also develop intergenerational activities, thinking about the students and their families, and literacy courses.

The vocational school – EPATV – is working on mobility projects since 1993 in partnership not only with European countries, but also with some other Portuguese speaking countries: Cape Verde, St. Tome & Principe, Mozambique, Guinea Bissau and Angola. We also work with students from Guinea Equatorial, Senegal, Libya. More recently, the school has hosted students from Brazil, Ukraine, Romania and from African countries.

EPATV is a member of the European Association for the Education of Adults, the voice of non-formal adult learning in Europe and we’re now involved in its vice-presidency. We’re also members of APCEP – Portuguese Association for Lifelong Learning and ANESPO – National Association for Vocational Schools.

Escola Profissional de Comércio, Escritórios e Serviços do Porto - Associação Raul Dória

With 30 years of history, the Professional School Raul Dória has established itself as a reference institution in professional education, developing several projects related to traditional commerce and the city of Porto. At the moment, it has a wide range of companies with which it collaborates in curricular internships, promotes the search for the first job for young school graduates and develops projects that not only bridge the gap between theoretical and practical teaching, but also allow trainees to articulate the knowledge and skills acquired in the various disciplines.

Escola Profissional de Rio Maior (EPRM)

The Rio Maior Vocational School is part of the vocational education offer system regulated by the Ministry of Education and has as its main objective the educational and professional training of young people, anchored in the mission to prepare citizens with socio-professional competences adjusted to the labor world and to the characteristics of the society which they belong to. One of the priorities of the school’s educational project is to provide students with a stimulating and motivating learning process allowing them to expand their horizons at the professional level, but also at a personal level.

European Forum of Technical and Vocational Education and Training (EfVET)

EfVET is a unique European-wide professional association which has been created by and for providers of technical and vocational education and training (TVET) in all European countries. Its mission is to champion and enrich technical and vocational education and training through transnational cooperation by building a pan-European network of institutions. EFVET represents directly the views of its members (187 from 31 countries) on VET issues to all the European Union Institutions and Bodies and responds to all appropriate consultation processes. EFVET offers a network of and for, professionals to foster connections between researchers, business people, and practitioners in Vocational Education and Training and lifelong learning.

INSIGNARE – Associação de Ensino e Formação

Insignare is a non-profit association, which has been working for more than 20 years in the areas of teaching and vocational training, under the supervision of the Ministry of Education. Within the varied range of vocational courses available, Insignare provides level 4 secondary education courses with both vocational and academic qualification. Moreover, it also provides vocational training through short courses for adults, thus promoting lifelong learning.

Kentro Dia Viou Mathisis “Diavima”

The Center aims to develop actions that promote lifelong learning and sustainable development. In this context, it organises and supports a variety of educational activities both conventional and distance (eg conferences, workshops, lectures, exhibitions, workshops, training seminars, Summer Universities etc.) aimed at the education and training of individuals and social groups and programs that contribute to the protection and sustainable management of natural and cultural heritage. He is also responsible for writing and publishing books, leaflets and educational materials in hard copy and digital form. It participates in European programs and collaborates with public and private bodies as well as with scientists from Greece and abroad.

Køge Business College

Køge Business College is a major regional educational Institution. In close collaboration with businesses and organisations, we develop educations, activities, projects etc. at all levels. We provide and distribute educations for all stages of lifelong learning on which the welfare of the society depends. Our focus is to provide knowledge and theory that our pupils, students and course participants can use in practice. Our college enables you to get the key to the future.