digital Teacherpreneur

STUDY ON PROFILES, TRAINING NEEDS AND CHARACTERISTICS OF THE TEACHER- ENTREPRENEUR (DIGITAL TEACHERPRENEUR) IN AUSTRIA

DISCLAIMER

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0. ABOUT THE PROJECT AND THIS DOCUMENT

Digital Entrepreneurship: Innovative Teacher Training (Digital Teacherpreneur) is a project funded by Erasmus Plus as a Strategic Partnership in the field of vocational training to support innovation. It aims at the development, transfer and implementation of innovative practices improving competences and skills of educators in the field of entrepreneurship, particularly in *Digital Entrepreneurship*.

Professionals in education and training who participate in initial and continuous professional development training schemes are the project's main target group/ audience. They, as well as entrepreneurs in digital focused companies, were invited to participate in a short interview helping us find key learning gaps and needs as basis for the development of teaching/ learning material.

The aim was to better know about the learning needs of these innovative teachers regarding e-tools and implementation also in the business world. Valuable input came mainly from experienced teachers, business representatives (entrepreneurs applying new technology or offering new e-services or chamber representatives), ICT experts, policy stakeholders in Austria who contributed Jan/Feb. 2020 to this document.

1. TRADITIONAL ENTREPRENEURSHIP TEACHER: A BACKGROUND STUDY.

1.1 Overview of the Education System in Austria

The Republic of Austria has a free and public initial vocational education and training school system; nine years of education are mandatory. General compulsory schooling begins at the age of six.

The national qualification system is defined in a policy paper by the Federal Ministries (Federal Ministry of Education, Arts and Culture with the direct support of the Federal Ministry of Science and Research). The qualification levels 1-5 apply the European Qualification Framework (EQF) descriptors. For qualification levels 6-8 two sets of descriptors have been identified with the objective of addressing both, academic and vocational qualifications which also allow high permeability between the various educational paths. Depending on one's skills and interests, students can choose from numerous paths and areas of special training focus. Besides providing recognized vocational qualifications, all VET courses exceeding two years' duration also lead to an entrance qualification to general higher education. This can be either directly by passing to the appropriate final examinations or indirectly by succeeding in specific supplementary examinations.

Along with VET schools and colleges, apprenticeships represent the dual education system. It brings together theory and vocational practice at a school and a work place environment, i.e. being at the same time a student and an apprentice. The *Youth Training Provision Act Jugendausbildungssicherungsgesetz* – JASG) ensures that all young people who do not find a suitable apprenticeship (and related employer) after the end of their compulsory schooling have access to vocational training courses, at least on a temporary basis.

Austria's HE system distinguishes between Bachelor and Master degrees (of 3 years and 1–2 years respectively) followed by postgraduate studies leading to a doctorate, applying the Bologna higher education model.

Continuing vocational education and training (CVET), as another possible phase in the education process, is not governed by a specific law and is not provided in a heterogeneous manner, depending more or less on the more important aspects of relevance: school system/ higher education, taxation and the labour market. CVET in schools, colleges and tertiary institutions is the responsibility of the Ministry of Education but e.g. the *Federal Ministry of Economics and Labour* have the political responsibility of company-based CVET and Employment Service schemes designed to upgrade jobseekers'skills.

The training system provides specialized and cross-curricular skills which trainees should have acquired by a particular year of schooling. The curricula also consider new skills related to ICT e.g., new working styles (e.g. online group work) or new industry/ sector needs to stay compatible. In addition, many students try to gain industrial IT certificates for specific occupations.

1.2   Teachers' education model (initial and professional development)

Initial teacher education in Austria is divided into two: while for general secondary schools (AHS) and vocational secondary schools (BHS) studies at universities are necessary in general, the compulsory school sector (primary school, lower secondary school, special needs school, polytechnic school, religious education) and vocational sector (vocational school, technical-industrial pedagogy, nutritional pedagogy, information and communication pedagogy, fashion & design) can receive initial vocational training at a teacher training college. In many subjects, teaching staff must also provide evidence of relevant experience in industry or commerce then.

In CVET (continuous vocational education training) courses they have to show specific qualification and/ or work experience in the respective training subject.

Continuous teacher training – professional development

The *School Instruction Act* and the *Civil Service Law Act* contain general regulations from which an obligation for teachers to undergo further training can be derived. However, a quantified obligation for further training exists only for teachers at compulsory schools (state teachers) in the "formal education system", for whom participation in compulsory further training courses amounting to 15 hours per year is planned. There is, however, no content specification with regard to compulsory or additional training. Teachers at grammar schools or vocational colleges (BHS) are not required to attend further training courses on an hourly basis under the "old" service law, which was still optional until autumn 2019.

As in most European countries, in-service training is basically seen as the responsibility of the individual teacher, who decides largely autonomously in which areas and to what extent s/he wishes to expand skills or competences. For all types of schools, continuing vocational training is essentially offered or organized by universities of teacher education. To a lesser extent, although with increasing tendency, these services are also offered by other universities.

Teachers usually put together their own individual program, whereby, especially at compulsory schools, it is customary to consult with the director/ dean. The spectrum of seminars offered ranges from direct professional development to creative design and topics such as stress management and burnout prevention. In addition, school-internal further education programs are possible in that a school receives a tailor-made program for specific development areas (e.g. reading promotion, dealing with heterogeneity, etc.).

Similar at non-formal education providers, like adult training centers operated to help (young) adults re-enter the labor market e.g., teaching professionals are free to continue their own skills/ competence development. However, depending on to whom the services are directed to, they might be obliged to update specific certificates indicating their e.g. didactic or computer skills (like gender mainstreaming courses, ECDL – the "computer driving license" e.g.). They also may attend these at universities or other training providers who are approved by the respective authorities or "labels" issuing these certificates.

1.3 Entrepreneur ship education so far.

In Austria, there is not necessarily a formal education to become an entrepreneur.

However, school curricula include in general skills expected employees bring as entrepreneurial skills. There is also the company driver's license as a complementary educational offer in Austria to promote economic understanding.

As different as the individual companies are, as different are the CVs of the self-employed behind them. A clear picture emerges, however, with regard to the educational level of Austria's entrepreneurs, who have an above-average level of education compared to the general population. A look at the type of qualification for the entrepreneurial profession shows that almost 70% of the participants in the study have completed a corresponding formal training. This contrasts with around a quarter of the respondents who claim to have grown into entrepreneurship true to the motto "learning by doing". The study shows that, at 30%, this is particularly common among one-person companies.

1.3.1 Digital literacy in Austrian working world.

In Austria, people are skeptical or even cautious about digital change. These are the findings of the study "Innovation and Change", conducted by the *Julius Raab Foundation* in cooperation with the opinion research institute IMAS. Among 905 Austrian entrepreneurs surveyed, innovation appears to play a role, but to a limited extent: when asked about the importance of innovation, an average score of 3.21 is awarded on a scale of 1 to 7. The study also shows that

companies view innovation as a combination of tradition and innovation. Entrepreneurs agree most strongly with the statement that they use the old, tried and tested methods in their business activities. First and most of all, digital change means for companies a far-reaching change than many CEOs might want to admit.

Digital working world in Austria

It can be said that the basic digital equipment is extensively present. Without Internet access, domestic companies hardly can work, so it is found in 98.8% of the Austrian companies. In 2003, the figure was 89.2 %. Today, 87.5% of Austrian companies present themselves by their own website. In the use of social media like blogs, wikis or social networks they are more restraining as used only in 42% of all Austrian companies.

How competitive Austria actually is in the field of digitization compared to other EU countries can be seen from the DESI index, which gives a value of 0-1. The EU Commission has established five dimensions for this: Connectivity, human resources, Internet use, integration of digital technology and digital public services. With a total value of 0.48, Austria is at the 13th place in the middle field.

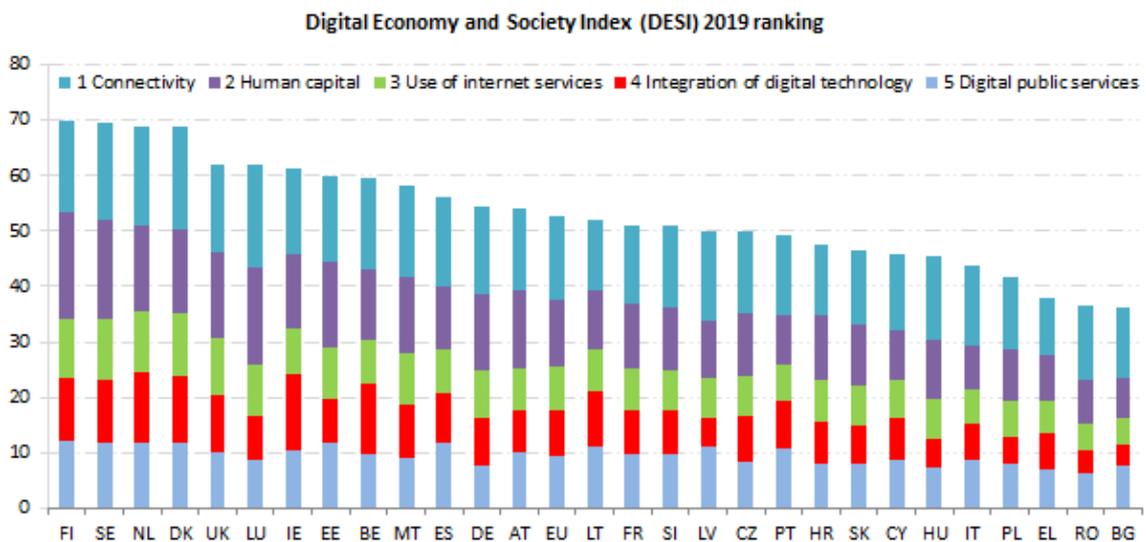*Bild: DESI-Index im Ländervergleich, https://ec.europa.eu/digital-agenda/en/desi*

The above-average value of 0.57 in the area of "human resources" should be highlighted. This states that the Austrians have a higher level of basic digital literacy than the EU average. The

low value of 0.37 in the area of integration of digital technology in business processes can be attributed to the weak use of new opportunities, such as cloud technologies.

The index also shows that SMEs in Austria, in particular medium-sized enterprises (with the exception of tourism), have difficulties in using digitization for their own benefit.

1.3.2 Strengthening digitalization in Austria.

In 2019, the *Public Employment Service Austria* (AMS) set up its own focus on digitization as part of the "Standing Committee for New Skills" project series: "New Digital Skills". Together with the research departments, managers, personnel developers and managers of large and medium-sized companies from the fields of tourism, trade, construction and construction ecology, production, and office and administration, the changes in the labor market were examined against the background of digitalization. The decisive question was: "Which competences are needed to master these challenges?".

A total of 125 experts from companies, training and social partner institutions analyzed the topic and the results are being incorporated into the AMS's continuing training programs available to companies for their in-company continuing training.

Other support can be found in various funding for companies from the federal government, the states, municipalities, the EU and chambers of commerce. SMEs, incl. independent professions, can take part in a funding program "SME Digital 2.0" to make better use of the opportunities offered by digitization. The funding supports consulting by qualified business consultants and also the implementation of digitization projects.

The *Pact for Digital Literacy* is an association of industry, educational institutions and the public administration (*Federal Ministry for Digitalisation and Business Location* - BMDW) to develop digital basic skills in the use of mobile services in different target groups. On the basis of the *European DigComp 2.1* reference framework, a digital competence model "*DigComp* 2.2 AT" was developed for Austria on behalf of the BMDW for this purpose.

The European Computer Driving Licence (ECDL) scheme e.g.

1.3.4 Teacher's profiles and training offer and gaps.

Teacher training is one of the most important pillars in the digitalization master plan. Only 20 percent of Austrian teachers feel well or very well prepared for the use of information and communication technology in their lessons. The OECD average is 43 percent. (TALIS, 2013)

Digitalization is changing professions and skills, changing processes, workflows and job profiles. Digitalization requires ongoing training and further education. The main findings, related to training needs identified by the *Employment Service Austria,* are:

Basic IT understanding and professional IT know-how

The central effects of digitization are transformation and "higher speed". It is not just a matter of mastering individual tools. A basic digital understanding is the basis for a successful transformation, because only people who understand how "the thing" works can use it comprehensively. Digital tools have so far been strongly text-based, and their increased use means that reading and writing skills are much more important than before.

Knowledge about data protection and data exploitation

Data is the new gold in the digital world. Employees in all industries need a certain amount of knowledge about data protection and data exploitation. At specialist level, experts in data science and data analytics with analytical skills and process knowledge are needed.

Activities change –specialist skills.

Digitization has increased the need for specialist skills rather than having replaced them. The combination of specialist knowledge, process knowledge and "common sense" is becoming increasingly important through collaborative work with digital tools.

Social and methodological competencies.

Digitalization can make many things easier, but dealing with it requires human qualities such as social or methodological skills. It asks for more communication skills, applying "Digital etiquette", designing information flows and project processes. Interdisciplinary teams make interdisciplinary thinking and process understanding necessary.

Structure and process changes.

The dynamics of digitization must be transferred to the organization and its processes and procedures. Traditional structures are being replaced by temporary project teams whose members come from the various hierarchies and specialist departments. Teams need to use and apply appropriate tools for communication and collaboration, they must know about new working techniques and styles.

There are many institutions, public and private, in Austria, offering relevant trainings to specialize on digitalization.

2. ENTREPRENEURSHIP TEACHERS IN THE DIGITAL ECONOMY: A FIELD SURVEY.

2.1 Introduction – about scope and sample.

During the field survey within this project, six (6) interviews were held between January 15th and 21st, 2020. Three of the interview partners were digital entrepreneurs, one of them managing director of a VET provider institute, one a business representative in a business consulting company specialized in company restructurings (both male) and one owner of small business in the field of training/coaching (female).

Three more interviews were held with teachers in the field of VET training with focus on digital learning, two females and one male, all aged from 42 to 57 years.

2.2 Summary on suggested profile (key characteristics / skills and competences) of an efficient teacher-entrepreneur.

As main key characteristics different to those of a "regular" teacher, the following were pointed out that an efficient digital teacher-entrepreneurs hould, along with advanced ICT-skills and well-founded experience with digital tools, show:

- ✓ To know about the different teaching requirements and environments
- ✓ skills necessary for designing and implementing of innovative teaching   concepts and materials
- ✓ innovative didactic and methodological skills
- ✓ digital language skills
- ✓ understand changes in working environment
- ✓ know about new models of personal and VET training
- ✓ to have entrepreneurial spirit

In addition attitudes like courage and a strong commitment to new technologies, curiosity for new fields of education, open-mind and flexibility, passion for teaching and to be inspired by digital enterprises and to be inspirational to others were mentioned to be important for the profile.

Overview Knowledge/ Skills/ Competences and attitudes.

Knowledge	Skills/ Competences	Attitude
*To know the "digital language" * to know digital tools for cooperation/ collaboration & communication, creative working and design *to know about cooperation and networking strategies in today's business world and tools commonly used *to know about changes in working environment *to know about the need to understand a technological ecosystem around and how to exploit it for business *to know about the business development circle and management strategies	*be able to teach basic skills in ICT and use a vast majority of digital tools applied in education environments (like Learning Management Systems, Survey tools, Content Authoring tools) and use databases for quick access to relevant information, analytic systems to analyse and interpret relevant information, social media– and other tools – for marketing *be able to apply didactic and methological skills necessary for future digital entrepreneurs (particularly facilitation of learning) *be able to apply social skills * be able to apply multidisciplinary skills (at least in digital and entrepreneurial area) *be able to empower creativity, spirit of initiative, responsibility, problem solving strategies * be able to develop social competences as the ability to cooperate, network, learn to assume new roles * be able to (support) develop new products, processes and business models and engage with customers and stakeholders	*to have entrepreneurial spirit *to have courage and a strong commitment to new technologies, *show curiosity towards new fields of education, *to have a passion for teaching *be inspired by digital enterprises and inspirational to others be open-minded, *flexible and responsible person

2.3 Results from semi-guided questionnaire – (about) learning needs/ gaps

Technology-related.

VET teachers and digital entrepreneurs consistently identified the learning needs/gaps mainly as lack of knowledge and efficient use of provided technologies.

Privacy and data protection is a serious concern which has to be covered by all software and e-tools' use. Teachers have to be aware of this and make sure that all applications used in digital teaching meet the requirements of local and EU-laws. Handling these requirements in a not careful enough manner was considered as a serious lack because of the impact this could have on all concerned.

Among tools, software and technology mentioned by VET teachers mainly were interactive learning platforms with tailor-made contents like Moodle or Knowledge Fox, knowledge quizzes like Kahoot or Playmit, learning apps and tablets, compatibility with smart phones, cooperation-software like Poll Everywhere.

It was also pointed out during the interviews with VET teachers that all of them should be able to solve problems by related technologies on their own as far as possible. This also could have an important learning effect.

One of the digital entrepreneurs emphasized the importance of constant improvement of digital resources. In his company, part of this is the establishment of a tailor-made digital toolbox to share practical know-how resp. resources as project-overlapping process throughout the company so all persons have access to these information. Also, sharing or using parts of databases for quick access to relevant information and communication is considered as an important part of a company´s digital landscape.

The self-employed digital entrepreneur indicated to use google analytics – or similar - to get relevant information, for marketing also social media along with registration to educational network platforms like erwachsenenbildung.at.

Besides, implementation of external and internal digital processes enables efficient paperless communication and networking with project partners and clients.

Digital didactics-related.

For the VET teachers, the didactic focus was on explaining the learning objectives and contents clearly so learners could realize the process and their benefits from it. They also agreed that teachers have to consider all general settings available to take full advantage of all possibilities for learners.

The lack of needs in digital-didactics the interview partners mainly considered as the adaption of the self-images regarding the change of competences´focus from specialist knowledge to methodical competences. In their opinion, teachers also have to be able to transfer their relevant knowledge/expertise into a learner-adapted language and apply e-tools which match the objectives and are adapted to target groups.

In digital-entrepreneurship, there is a need for connecting teaching styles and qualities with business requests. Implementation of general concepts to cover economic aspects and provide whole-in-one solutions for digital learning processes including interactive learning platforms, devices and internet-based e-learning, are essential for becoming successful in the field of teacher-entrepreneurs.

Another important aspect - yet not always well covered - is awareness of modern world´s requirements and being part of it; together with educators involving themselves in finding and implementing new concepts or contributing ideas.

One of the experienced VET teachers stated that self-guided learning needs' understanding of the changed role. It is more "learning by doing" than mere guided learning.

The business situation/ perspective.

Every business, no matter how big or small, requires a digital presence in order to reach out to customers and serve them well. Technological developments and advances in infrastructure create various opportunities for entrepreneurs. Teaching of digital entrepreneurship is not only an important topic but can also be held in many educational environments.

Digital enterprises are characterized by a high intensity of awareness and utilization of digital technologies to improve business operations, develop new products, processes and business models and engage with customers and stakeholders.

They identify and exploit the diverse opportunities based on the use of the internet, World Wide Web, mobile technologies, digital media and other information and communication

technologies. The availability of such a large number of digital tools and resources has made immense growth in digital entrepreneurship possible.

Teachers in digital entrepreneurships should have a passion for teaching and be inspirational and inspired, open-minded, flexible and responsible. They also should be team players and have good networks. Being between education and economy and focusing on real life teaching is another characteristic that makes a good teacher in this field.

Statements from the digital entrepreneurs interview partners:

- ✓ Analysis of web-related information provides new and valuable sources of information.
- ✓ Creating business from a wide range of e-tools and software solutions and setting up with the latest technologies.
- ✓ Digital collaboration with partners, customers, stakeholders
- ✓ Digital entrepreneurship requires understanding the technological ecosystem around and using it for business.
- ✓ Analysis on needs/ gaps to be filled in initial and continuous professional education to deepen digital entrepreneurship and teacher training needs for this area of entrepreneurship

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