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Multidisciplinary, Project-based Digital Learning Content for VET

Summary of the interviews Italy

Made by Fondazione ITS Jobsacademy (JAC)

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Date: 30/06/2022

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Interview data

Participants: 5

Period: 15/04/2022 – 20/05/2022

Place: online / phone call / Bergamo and Milan, Italy

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Profile of respondents

✓ Field of education
- 3 teachers (Diego B., Armando E., Cristian L.) are Higher Education VET Teachers (EQF5)
- 2 teachers (Giulia L., Alessio V.) offers training for companies (adult education)

✓ Subjects:
- JAVA programming module 1
- Object-oriented programming
- JAVA and programming - software development using database
- Backend programming with PHP – Basic
- Backend programming with PHP – Advanced

✓ All 5 interviewed teachers have a main job as freelance programmer and consultant for companies. Teaching is their second job.

1. Knowledge, skills, competences based on learning outcome

Teachers expect their students to have the following skills once they finish their course:

- ✅ autonomy in the ability to design and develop web applications to be able to enter the market as full stack programmer analysts
- ✅ be able to create a management application (e.g., data management of a warehouse)
- ✅ be able to create a web backend application
- ✅ knowing how to create software programs with JAVA language at a basic level

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2. Applied books, learning materials

- ✅ Official books and manuals:
  - Used only to provide theoretic information on macro-topics and a basis for the theoretical part of the lesson. They are suggested to students but not mandatory.
- ✅ Material created by the teacher
  - Slides and projects developed by the teachers specifically for their class group and used as main teaching material

- ✅ All interviewed teachers use books or manuals to some extent, but they are either optional (a corollary to review some aspects of the lessons), or anyway of secondary importance compared to the material developed by the teachers themselves

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3. Tools used (digital and traditional) teaching

- ⊘ during the lesson, students look for materials online on websites provided by the teacher (e.g., W3Schools) as well as through an independent search on Google.

- ⊘ in one case, the teacher leaves the students free to decide what to use as an open-source PHP program and as an open-source text editor (Atom, Visual Studio Code)

- ⊘ examples of code for real or reality-inspired programs are used as a model during the explanation of theoretical subjects and practical exercises

- ⊘ open tutorials available online

- ⊘ PPT slides are used to a lesser extent, many teachers avoid them

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4. Teaching and learning methods

- The lessons have a first part of frontal introduction to the topic with the use of the whiteboard or slides (the whiteboard is better because it is more dynamic). Then, the teacher presents a project that is carried out together. Lessons are 25% theory 75% practical

- mix between a) frontal lesson; b) exercises to be done in pairs or in groups; c) exercises to be carried out independently at home

- active learning, learning by doing, project-based learning, collaborative learning

- teachers in JAC are freelancers or come from companies, so in the IT area of JAC the involvement of companies is automatic because the teachers know what skills the market requires.

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5. Gaps in terms of textbooks, digital learning materials

- ✅ In JAC, each teacher is free to choose materials and update them every year, so manuals are quite up-to-date because they are chosen every year by the teacher.

- ✅ It is difficult to bring the preparation of young people closer to the needs of the jobs market. The students start the EQF5 course with a lot of theoretical background but without knowing how to use the tools of this profession or without knowing how to use technical and professional terms.

- ✅ Computer language is constantly evolving so it is not always easy to find updated material that groups topics in a coherent way, so sometimes teachers have to combine a mix of resources

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7. Suggested tools, methods support teaching and learning

- ✓ Coming from the business world, the teachers bring examples of professional life to their students.

- ✓ External professionals are invited to speak in the classroom to provide testimonials and to talk about the latest news in their professional field

- ✓ The method that works best is one in which theory and practice are interconnected. The theory is explained step by step, the exercise is done together in the classroom and only then are the students left alone to work independently. If the teacher explains the theory and shows the exercise without doing it together, or if he explains the theory and leaves the students to do the exercises alone, the students do not acquire the skills and competences and they go towards educational failure.

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8. Methods of assessments

Two different approaches:

☑ **Each course has an intermediate exercise and a final exercise**
- practical exercise / simulation (e.g., 4 hours to create an application with certain characteristics – students can consult the web during the exam and consult their previous exercises)

☑ **No final exam**
- Teachers assigns exercises and projects to be carried out during the course, both individually and in groups. Each exercise is assessed individually and at the end the teacher makes an overall assessment.

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Development of soft skills

⊘ **Are teachers prepared to develop students' soft skills?**

Soft skills are almost always included in all technical courses in Italy's higher education VET system (Istituti Tecnici Superiori), nonetheless they are taught in specific modules (e.g. Team Building). This way the students perceive the subject as useless and not connected with the profession they are learning. Teachers are prepared to develop students' soft skills because they are also active professionals in addition to being teachers, so they know exactly in which situation each soft skill is required.

⊘ **How can students develop soft skills?**

Students can develop soft skills during their work internship, but also during the ordinary lessons thanks to the use of methodologies such as:

- Project-based learning
- Simulation
- Design thinking

The key is to include the assessment of soft skills in the ordinary evaluation practice that takes place during and at the end of each course module.

⊘ **What tools can the school provide to teachers to develop students 'soft skills?**

Soft skills should be mainstreamed inside the technical modules, and not taught as separate modules, so that students learn to apply them in the professional context.

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Conclusion

- ⊘ Manuals and books have a smaller role compared to a combination of material created by the teacher and found online

- ⊘ There is plenty of open-source material online available

- ⊘ In the ICT field practical and project-based learning is way more effective than the classic frontal theoretical lessons

- ⊘ Main difficulty is that the teacher must constantly update his/her lessons to keep up with market trends

- ⊘ Main suggestion is to involve freelancers and companies to intervene in class and bring real life examples of the application of the ICT contents

- ⊘ Main method of assessment is to create an application or to carry out a project

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Project basics

Title	Multidisciplinary, Project-based Digital Learning Content for VET
Acronym	VETPROFIT
Project ID	2021-1-HU01-KA220-VET-000025350
Program	Erasmus+ Cooperation Partnership
Target group	VET-schools' leadership, VET teachers/trainers, Companies (Agriculture and IT sectors)
Beneficiaries	VET students, Employers (Agriculture and IT sectors)
Partner countries	Germany, Italy, Hungary
Duration	01 November 2021 – 31 October 2024
Contact	iTStudy Hungary Education and Research Centre Ltd.

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Thank you for your attention!

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