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Multidisciplinary, Project-based Digital Learning Content for VET

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2021-1-HU01-KA220-VET-000025350

Summary of the interviews (Hungary)

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Interview data

5 teachers interviewed on 29/30 May, 2022, in Keszthely, Hungary

4 teachers teaching EQF5 level schools, IT basics, Digital Culture Programming

1 teacher teaching at EQF4 level, IT basics

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1. Knowledge, skills, competences based on learning outcome

- The experience of the IT teachers are related to 2 school subjects :
  - Digitális kultúra / Digital culture
  - Programozási alapismeretek / Programming basics

„I teach based on the general curriculum of the requirements of the subject **Digital culture**”

Programming basics

„Plans and codes web pages; plans and implements web client and server applications; plans and develops desktop applications (software); tests software; plans and maintains databases”

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Summary of the techers' opinion:

- Incoming (grade 9) students have very different levels of background knowledge,
- Difficult to build on the insufficient competences – teachers have to start from the basics and provide students with an upgrade
- Solid basic knowledge is crucial for the development of professional skills and for the attainment of the professional requirements in the curriculum.

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2. Applied books, learning materials

In the subject **Digital culture** teachers use the smart books of NKP + develop their own materials (shared via OneNote).

In Programming

No coursebook available for secondary school students /on python/, only a few professional books dealing with some coding/ programming.

Development of course materials matching the curriculum requirements is done by the individual teachers.

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At lead-in stage: MINDSTORMS EV3 LEGO robot + software, webpage code.org, W3schools.com (includes short pieces of program codes). Other webpages: sulipy.hu; tferi.hu, webiskola.hu, infojegyzet.hu (to be adapted!)

Teachers have to prepare material for each class, have to decide what theory to give over to students (future use / exam topics). They also have to prepare practical tasks themselves or search on the internet.
No task sheets and keys are available, the material available is not good for self practice.

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3. Tools used (digital and traditional) teaching

Digital culture

Smart coursebooks, OneNote, Redmenta, Tankockák, Kahoot, Teams

Programming basics

Not sufficient IT equipment at schools, tools are old and not competitive, not appropriate for the acquisition of up-to-date knowledge.

Where the development tool is available (arduino), students can learn quicker and simpler.

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4. Projects

Digital culture

Digital code week

Programming basics

No or very few prepared sample projects available, no centrally developed sample projects either. Within the IKT project subject students can work together for a longer period, together. Teachers prepare the materials themselves, following and based on the central curriculum.

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5. Teaching and learning methods

Digital culture, Programming basics

Students can acquire knowledge via learning and doing (tasks matching their age group and competences).

Teachers' experience: with the help of short and dense tasks, later moving on to more complex ones, students can more easily acquire the theoretical knowledge. The use of complicated development environment makes their work more difficult.

Teachers use project work, pairwork, individual work and frontal work as well.

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6. Gaps in terms of textbooks, digital learning materials

Impossible to prepare an up-to-date task/ coursebook for multiple years because of the constant changes in IT = no/ very few coursebooks or digital learning resources for students and teachers.

It would be great to have interactive collections of practice tasks, beacuse reading theory in itself does not result in a solid knowledge base. However, by **learning by doing** students are able to realise correlations easily = a good ground for the further development of competence.

No sample projects + appropriate tools.

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7. Suggested tools, methods support teaching and learning

Suggestions of teachers interviewed:

- An online learning material aiding practical education, available for everyone + task collection could help the teaching/learning process
- Detailed central douments with specified requirements
- Sample task sheets in accordance with the training and exam requirements would be necessary

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- A unified book, tasks and related digital knowledge base would be needed
- The knowledge to be acquired would need to be adjusted to the level and pace of students (too much, too difficult)
- More project weeks (code week) needed
- Microbit, lego robots, bots
- More modern devices and applications, computer labs needed for the practical training.

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8. Methods of assessments

Summary of teachers’ replies

- We have not used any different measurement methods in our school (2 teachers).
- There is no tool or program available in our institution to evaluate students' knowledge in a different way than usual (I am thinking primarily of IT practical education and programming knowledge./ (1 teacher)
- I have already used the self-assessment task set used in reflective pedagogy (1 teacher)
- Students evaluate each other's reports and lectures together (1 teacher).

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Conclusion

We have interviewed 5 teachers of IT, based on the given questions. Teachers concentrated on 2 subjects (Digital culture, Programming basics) with their replies.

Conclusion:

- Frequent changes in training requirements,
- Rapid change of IT sector,
- No appropriate coursebooks and task banks, no master projects or tasks
- Teachers have to develop course materials and tasks themselves (manuals, presentations, tasks, projects etc), for which they search information on the internet

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- Institutional devices are not modern enough, there would be a need for more profession-specific applications, programs and tools for the efficient training and exam preparation (device development or outsorced training to a partner company would be a solution.
- Teachers do not have the necessary knowledge and practice in innovative teaching and learning assessment methods (trainings needed)
- Teachers need a lot more information on existing developments (assesment methods, sample projects, task banks)

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Soft skills development

- Teachers are generally not prepared for developing the soft skills of students. They would need trainings to be able to do that more consciously.
- They would need to start from basic soft skills from early childhood (eg. positive attitude, team work, self awareness) – family, primary schools important! Then more work/study-related soft skills to be concentrated on (scheduling, self-supervising, troubleshooting etc). Maybe with the help of strenght/weaknesses analysis, trainings based on the outcome.
- School directors could provide methodology trainings for teachers / when employing new staff, they could assess the applicants based on their soft skills.

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Project basics

Title	Multidisciplinary, Project-based Digital Learning Content for VET
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Contact	iTStudy Hungary Education and Research Centre Ltd.

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Thank you for your attention!

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