

Lesson Study

for VET - Teachers' collaboration
for Improving the Quality of
Vocational Education and Training
2020-2023

IO1-A4 FINAL REPORT

IDENTIFYING NEEDS FOR PEDAGOGICAL CHANGE

ONLINE SURVEY ANALYSIS

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1. INTRODUCTION

The aim of designing and creating a multilingual (EN, HU, DE and NL) teacher/trainer questionnaire for an online survey of the teachers/trainers working in the four participating VET schools is to identify their professional training needs for pedagogical change. The objective of this online survey is, hence, to identify needs for pedagogical, methodological improvement, teachers/trainers' familiarity with learner-centred, active, digital and other 21st century teaching methods, and their current engagement in teacher collaboration activities. The intention is to then use this information to develop the topics of the e-learning modules of the project.

The online survey, which was developed using Google Forms, consisted of four main sections. Section A targeted teachers' background information and teaching practices, and the questions were of a multiple-choice type. Questions focused on age, role, qualifications, subjects that teachers currently teach, teaching and industry experience, and teaching practices. Section B, which dealt with teachers' professional development (PD) and training needs, consisted of an open-ended question followed by a multiple-choice grid to identify reasons for engaging in professional development. Section C centred on teachers' PD opportunities and included a mixture of open-ended and closed questions. In this section, teachers were asked about their positive PD experiences, the importance of PD in a teacher's career, the ways in which teachers engage in PD, the barriers to PD and about how PD is and/or should be initiated. In the final part, Section D, teachers were asked about digital tools and applications in their everyday practices. Questions, which were all of the multiple-choice type, focused on the frequency of using digital contents and open educational resources for teaching, the frequency of creating and/or editing digital content, the use of online and offline applications for creating or sharing digital contents for communication and collaboration, their perceived level of digital competence, and whether they would be interested to participate in an online course for VET teachers on lesson study, active learning methods and digital education.

Questionnaire data was collected over a period of three weeks - from the last week of March to the end of the second week in April 2021.

2. PARTICIPANTS' BACKGROUND INFORMATION AND TEACHING PRACTICES

A total of 133 VET teachers from the four partner countries participated in this online survey. The participants for each country are given in Table 1 below.

Country	Participants
Austria	24
Hungary	20
Malta	20
The Netherlands	69

Table 1: Number of participants from each country

In Austria, Hungary and Malta, most participants were aged between 36 to 65. However, in The Netherlands, the age range of participants was wider, covering the bracket 20 to 65 years. The average age is between 44 to 48 years (see Table 2).

Age range (years)	Country			
	Austria	Hungary	Malta	The Netherlands
20 – 35	3 (12.5%)	3 (15%)	0	20 (29 %)
36 – 50	11 (45.8%)	7 (35%)	14 (70%)	24 (34.8%)
51 – 65	10 (41.7%)	10 (50%)	6 (30%)	25 (36.2%)
66+	0	0	0	0
Average age (years)	47	48	46	44

Table 2: Age range of participants

At the Austrian VET institution, the vast majority of participants (91.7%, see Table 3) were in-class teachers followed by in-lab/workshop teachers (45.8%). While 3 of the 24 participants had the role of a coach or mentor, there were no coach or mentor participants working in industry. The situation at

the Maltese VET institution was quite similar. Most participants (75%) were in-class teachers, followed by 45% who were in-lab/workshop teachers. Less than one-third of the participants (30%) were industry-based teachers. While only a quarter of the participants had the role of coach or mentor at the VET institution, there were no participants who held the role of a coach or mentor in industry.

Role	Country			
	Austria	Hungary	Malta	The Netherlands
In-class teacher	22 (91.7%)	18 (90%)	15 (75%)	61 (88.4%)
In-lab/workshop teacher	11 (45.8%)	3 (15%)	9 (45%)	18 (26.1%)
Industry-based teacher	2 (8.3%)	0	6 (30%)	4 (5.8%)
Coach or mentor at VET school	3 (12.5%)	1 (5%)	5 (25%)	53 (76.8%)
Coach or mentor in industry	0	0	0	38 (55.1%)
Other	2 (8.3%) – university-based teacher & head of department	1 (5%)	1 (5%) – lecturer	14 (20.3%)

Table 3: Participants' role at the VET institution

In Hungary, participants from the VET institution were mostly in-class teachers (90%) with a very small percentage of in-lab teachers (15%), and just one participant who was a coach or mentor at the VET institution (the role of coach and mentor can have multiple meanings in the different institutions, they can guide students in exploring career opportunities or even support them in planning their learning). No industry-based educator participated in this survey. Unlike the other three countries, while participants in The Netherlands were mostly in-class teachers (88.4%), they also had a coaching or mentoring role at the institution (76.8%) and/or in the industry (55.1%) – see more information in Table 3. They also reported participating in different focus groups, namely: 'Quality assurance' (3), 'Student success' (3), and 'Examination'. There were multiple teachers who said that they acted as a scout (2), worked on educational development (2), or as a team leader (2). The following roles were also mentioned: counselor, fellow worker at the study center, fellow worker at the department of 'Information and Communication' and a coach of new teachers.

At the Austrian VET institution, slightly more than half of the participants had a qualification related to the subject they taught – a first degree course, a postgraduate degree, an industry qualification or industry based experience. Very few participants had a qualification not related to the subject they taught – first degree (4), postgraduate degree (3), industry-based (3) and industry-based experience (2). One of the participants had a PhD.

At the Hungarian VET institution, a third of the participants had a first-degree qualification and 75% were in possession of a postgraduate degree related to the subject that they taught. Almost a quarter of the participants had an industry qualification or industry based experience. Very few participants had a qualification not related to the subject they taught – first degree (1), postgraduate degree (4), industry-based (1) and industry-based experience (1). One of the participants had a mentor teacher qualification.

At the Maltese VET institution, half of the participants had a qualification related to the subject that they were currently teaching – a postgraduate degree, an industry qualification or industry based experience. Only two of the participants had a postgraduate degree not related to the subject that they were currently teaching – one was an in-class teacher and the other was an in lab/workshop teacher.

At the VET institution in The Netherlands, more than half of the participants either had a first degree in the subject (58%) or work experience related to the subject that they taught (58%). There were also participants with a postgraduate qualification related to the subject (27.5%) and others (20.3%) with a first-degree (which is not related to the subject that they were currently teaching at the time the survey was conducted).

In three of the four institutions (Austria, Malta and The Netherlands), the majority of participants taught a combination of VET (theoretical and practical) subjects. However, in Hungary, the majority of participants taught non-VET subjects (see Table 4).

Subjects	Country			
	Austria	Hungary	Malta	The Netherlands
VET – Teaching vocational theoretical subjects	5 (20.8%)	1 (5%)	4 (20%)	12 (17.4%)
VET – Teaching vocational practical subjects	1 (4.2%)	2 (10%)	0	3 (4.3%)
A combination of VET (theoretical and practical)	12 (50%)	3 (15%)	15 (75%)	38 (55.1%)
Non-VET	5 (20.8%)	9 (45%)	0	5 (7.2%)
Any combination of VET and non-VET	1 (4.2%)	5 (25%)	1 (5%)	11 (15.9%)

Table 4: Subjects taught

In the Hungarian institution, most participants (7) taught English as a Foreign Language (EFL), Vocational (IT) English (6), coding (4) and Hungarian language (4). There were also others who taught mathematics (3), PE (3), English civilization studies (3), ethics (2), digital culture (1) and a VET specialization subject (Python programming language) (1). In The Netherlands, most teachers (16 of 69) were involved in coaching, teaching social skills (5), LWP projects (5) and career and citizenship (4). These respondents provided a wide range of subjects – both generic and VET related, including nursing and care, health and mental health care (see Appendix 1). In Malta, respondents mentioned a range of subjects including hospitality, food and beverage (and related areas), bookkeeping, ICT, heritage and travel. Participants at the Austrian VET institution also reported teaching a range of subjects from languages such as English, Dutch and German to programming, database management systems, software and electrical engineering, vehicle technology, food processing and business administration.

The majority of participants in Hungary and Malta had more than 16 years teaching experience. In Austria and The Netherlands, this percentage was less (about 30%) with a similar proportion of participants also having between one to five years of teaching experience (see Table 5). With regards to industry, half of the Hungarian participants had no experience - because 9 of these 10 are general subject teachers. In Malta, 80% of the participants had more than 11 years of experience working in industry, while in Austria and The Netherlands more than 65% had over 6 years. In Hungary and Malta, most participants taught across levels 1 to 6. For the Austrian institution, this was over a third. On the other hand, in The Netherlands, teaching in the VET institution was up to level 4 (see Table 5).

Country	Teaching experience (years)					Industry experience (years)					EQF levels		
	No	1-5	6-10	11-15	16+	No	1-5	6-10	11-15	16+	1-3	4-6	1-6
AT	3	8	2	4	7	4	4	8	5	3	5	10	9
HU	0	4	2	3	11	10	4	4	1	1	1	4	15
MT	1	3	5	2	9	1	3	0	7	9	3	5	12
NL	4	21	14	10	20	8	17	12	11	21	63	66	NA*

Table 5: Participants' teaching experience, industry experience and EQF levels teaching

*In The Netherlands, teaching in VET institutions is only up to Level 4

Participants were also asked to report on their teaching practices. Data show that, in all four countries, VET teachers in the four partner institutions reported using different teaching and learning practices (see Table 6). The most commonly used were demonstrations (Austria, Hungary and Malta), student presentations (Hungary and The Netherlands), and problem-based learning, frontal/lecture-based and discussions (Austria and Malta). In the four VET institutions, the lowest reported teaching practices were design-based learning, game-based learning, flipped classroom and industry fieldwork.

Practices used often	Country			
	Austria	Hungary	Malta	The Netherlands
Simulations	6 (25%)	7 (35%)	13 (65%)	16 (23.2 %)
Demonstrations	16 (66.6%)	16 (80%)	18 (90%)	17 (24.6%)
Student presentations	12 (50%)	13 (65%)	9 (45%)	38 (55.1%)
Hands-on practical work	14 (58.3%)	10 (50%)	15 (75%)	23 (33.3%)
Problem-based learning	17 (70.8)	10 (50%)	13 (65%)	7 (10.14%)
Project-based learning	12 (50%)	5 (25%)	10 (50%)	10 (14.5%)
Design-based learning	7 (29.2)	2 (10%)	6 (30%)	3 (4.4%)
Game-based learning	6 (25%)	10 (50%)	6 (30%)	1 (1.5%)
Collaborative activities	12 (50%)	16 (80%)	8 (40%)	18 (26.1%)
Research-based learning	8 (33.3%)	10 (50%)	9 (45%)	11 (15.9%)
Frontal/lecture-based	17 (70.8%)	11 (50%)	15 (75%)	13 (18.8%)
Flipped classroom	4 (16.7%)	0	4 (20%)	4 (5.8%)
Industry fieldwork	1 (4.2%)	0	6 (30%)	17 (24.6%)
Discussions	15 (62.5%)	8 (40%)	14 (70%)	13 (18.8%)
Post-activity evaluations by students and/or with students	9 (37.5%)	9 (45%)	10 (50%)	20 (29.9%)
Coach/guide students	6 (25%)	7 (35%)	14 (70%)	16 (23.2%)

Table 6: Participants' teaching and learning practices

3. PROFESSIONAL DEVELOPMENT EXPERIENCES AND INITIATIVES UNDERTAKEN

The ways in which teachers undertake professional development (PD) initiatives varied considerably across the four VET institutions (see Table 7).

Practices used often	Country			
	Austria	Hungary	Malta	The Netherlands
Seeking PD opportunities to improve teaching	19 (79.2%)	13 (65%)	17 (85%)	7 (10.14%)
Keeping up to date with developments in industry	20 (83.3%)	3 (15%)	20 (100%)	16 (23.2%)
Reflecting on my classroom practices	21 (87.5%)	6 (30%)	20 (100%)	15 (21.7%)
Collaborating with the in-class LSEs	10 (41.2%)	9 (45%)	19 (95%)	10 (14.5%)
Collaboratively planning lessons with other teachers	9 (37.5%)	3 (15%)	13 (65%)	13 (18.8%)
Teaching a lesson with a colleague	7 (29.2%)	2 (10%)	6 (30%)	13 (18.8%)
Seeking support/feedback from colleagues within a school	16 (66.7%)	2 (10%)	12 (60%)	6 (8.7 %)
Asking feedback from students	19 (79.2%)	6 (30%)	19 (95%)	12 (17.4%)
Providing feedback to colleagues on their lessons	9 (37.5%)	0	8 (40%)	6 (8.7 %)
Collaborating with industry for work-based learning	9 (37.5%)	0	13 (65%)	5 (7.3%)

Table 7: Most common professional development initiatives undertaken by participants

In Hungary, for example, the most common practice was for teachers to seek PD opportunities to improve teaching, while in The Netherlands there were multiple preferences. It is important to note that, in the case of Hungary, data needs to be treated with caution given that almost half (9 out of 20) of the respondents were general subject teachers. In both the Austrian and Maltese institutions, survey participants reported higher participation on initiatives that involved them in improving teaching, keeping up to date with developments in industry, reflection and asking for feedback from colleagues and students. In Malta, participants appeared to collaborate more frequently than in other countries with learning support educators, other teachers, and industry.

Participants across the four partner institutions reported positive PD experiences during courses/ workshops and when engaging informally in discussions with colleagues (see Table 8). On the other hand, in these four VET institutions, participants reported positive experiences with PD, but to a lesser degree, related to observation visits, participation in online networks, peer observations or having a critical friend, engaging in different modalities of PD, formal professional learning communities, and engaging in collaborative practices with colleagues.

Positive experiences in professional development	Country			
	Austria	Hungary	Malta	The Netherlands
Courses/workshops	20 (83.3%)	18 (90%)	16 (80%)	59 (85.5%)
Education conferences and seminars	17 (70.8%)	8 (40%)	11 (55%)	33 (47.8%)
Programmes leading to certification	9 (37.5%)	10 (50%)	12 (60%)	50 (72.5%)
Observation visits to other schools	10 (41.7%)	5 (25%)	6 (30%)	24 (34.8%)
Participation in online professional learning networks of teachers	3 (12.5%)	8 (40%)	6 (30%)	28 (40.1%)
Individual and/or collaborative research	14 (58.3%)	6 (30%)	11 (55%)	16 (23.2%)
Mentoring and/or coaching	9 (37.5%)	7 (35%)	7 (35%)	41 (59.4%)
Peer observation and/or having a critical friend	4 (16.7%)	7 (35%)	3 (15%)	18 (26.1%)

Reading professional literature	17 (70.8%)	16 (80%)	10 (50%)	37 (53.6%)
Engaging informally in dialogue with colleagues	19 (79.2%)	16 (80%)	11 (55%)	58 (84.1%)
Engaging formally in professional learning communities	4 (16.7%)	7 (35%)	4 (20%)	9 (13%)
Engaging in collaborative practices with colleagues (like LS, classroom walk-throughs or co-teaching)	2 (8.3%)	8 (40%)	4 (20%)	4 (5.8%)
Engaging in different modalities of PD opportunities (online, face-to-face, group, teacher-led etc.)	3 (12.5%)	8 (40%)	5 (25%)	17 (24.6%)
Other	1 (4.2%) – language course abroad	0	1 (5%) – experience abroad	2 (2.9%)

Table 8: Forms of professional development that participants had a positive experience in

At the Austrian VET institution, the vast majority (19 out of 24 – 79.2%) agreed that they need to engage in professional development and 15 (62.5%) thought that other teachers in their school need to participate as well. Half of these participants reported that their professional development needs were currently being met. At the Hungarian VET institution, all participants agreed that they need to engage in professional development and 19 (95%) thought that other teachers in their school need to participate as well. Eleven (55%) reported that their professional development needs were currently being met. At the Maltese VET institution, all participants agreed that they need to engage in professional development and 17 (85%) thought that other teachers in their school need to participate as well. Fourteen (70%) reported that their professional development needs were currently being met. These respondents from the VET institution in Malta also mentioned the need for training in the following areas: ICT, technology enhanced learning and online teaching and learning; classroom management; varied pedagogies like project-based learning, flipped classroom and collaborative learning; and addressing different learning needs.

Respondents from the Austrian VET institution reported the need for training in project-based learning (4), design-based learning (2) and game-based learning. They also reported the need for PD on teaching methods (5), for example, flipped classroom and collaborative teaching. Learning about new

technologies, mentoring, programming skills and technical training in industry (e.g. food processing) also featured. Respondents from the Hungarian institution also thought they need training, primarily in new teaching methods. The majority mentioned the project method, which was no surprise considering that many teachers are still rather unfamiliar with it in Hungary. In fact, project work had been only recently introduced as a mandatory subject in VET. Two teachers also mentioned 'gamification' and one 'flipped classroom'. These are methods that also require ICT skills. Some expressed a desire to learn more about teamwork and interactive teaching methods. Another smaller group of teachers mentioned the need to learn more about how to motivate students. ICT skills were mentioned mostly by general subject teachers in this IT school. Other fields mentioned included content knowledge, assessment and foreign language skills. Some teachers thought they needed personality development or 21st century teacher skills, such as, self-awareness, collaboration, and communication skills. With regards to the LS4VET project, developing collaboration and communication skills are thought to be especially relevant.

In The Netherlands, the needs for PD could be largely grouped in six specific clusters:

1. Online lessons and tools: giving an online lesson (9), using digital tools (5), and specific areas like: 'blended learning', 'gamification', 'how SharePoint works'.
2. Examination and assessment: the professionalization question around this theme was quite broad. That is why the individual answers are named separately here (from broad, to narrow): examination, assessment, training in examination and quality, assessor training, assessment and evaluation internship, development-oriented assessment, giving good feedback, testing skills.
3. Coaching and conversation: coaching, as a separate construct, was indicated 13 times. In addition, there was also a demand for training in conversation (motivational conversation, internship conversations, learning conversations) and collegial consultation (peer-to-peer learning).
4. Developments in the field: teachers indicated that they would like to be kept informed about developments in the profession that are important to them (9) and also indicated that they want to be trained in a specific professional item (6) (e.g. with regard to specific nursing activities and/or developments in e-commerce).
5. Didactics and class management: Didactics, as a broad concept, was mentioned 4 times; these mentions also referred to 'practising with working methods' and 'creating a rich learning environment'. In addition, there was a demand for training around a specific didactic concept (research-oriented education, demand-oriented education, hybrid education, etc.) (5). Training aimed at increasing motivation (3), increasing ownership among students (2), group dynamics (3), and class management (2) were also mentioned several times.
6. Dealing with differences: this cluster included dealing with/guiding learning and behavioral problems (6), differentiation (8) and dealing with diversity (2).

In addition, the following themes – albeit less often – were also mentioned:

- Educational innovation: 'new teaching methods', 'design curriculum', 'doing research in MBO', and 'preparing students for the future'.
- Collaborating with colleagues: 'meeting techniques', 'learning together', and 'coming to mutual agreement'.

- Pedagogy and psychology: 'learning psychology', 'pedagogy/behavioral science', and 'neuroscience'
- Management: 'management', 'leadership', 'business administration', and 'system approach'.
- Own career: 'self-management' and 'own career development'.

Table 9 shows that teachers in the four country institutions reported that PD is generally initiated by teachers in collaboration with their respective institution. However, their requests varied by country. In Austria, participants requested less institutionally initiated PD (4.2% requested compared to 25% experienced) and more teacher initiated (25% requested compared to 16.7% experienced) and blended approaches to PD (70.8% requested compared to 58.3% experienced). In Hungary, participants requested less institutionally initiated PD (0% requested compared to 15% experienced) and more blended approaches to PD (95% requested compared to 85% experienced). In Malta, participants requested less teacher-initiated PD (5% requested compared to 25% experienced) and more blended approaches to PD (80% requested compared to 60% experienced). In The Netherlands, participants requested more teacher-initiated PD (19% requested compared to 7.3% experienced) and more blended approaches to PD (80% requested compared to 72.5% experienced).

Professional development opportunities		Country			
		Austria	Hungary	Malta	The Netherlands
Teacher initiated with support from within and/or outside the school	Experienced	4 (16.7%)	0	5 (25%)	5 (7.3%)
	Requested	6 (25%)	1 (5%)	1 (5%)	13 (19%)
Institutionally initiated	Experienced	6 (25%)	3 (15%)	3 (15%)	14 (20.3%)
	Requested	1 (4.2%)	0	3 (15%)	1 (0.01%)
Teacher and institutionally initiated	Experienced	14 (58.3%)	17 (85%)	12 (60%)	50 (72.5%)
	Requested	17 (70.8%)	19 (95%)	16 (80%)	55 (80%)

Table 9: How professional development opportunities are initiated

In three of the four countries (Austria, Malta and The Netherlands), at least half of the respondents reported engaging in PD during the past three months (see Table 10). In the case of Hungary, on the other hand, while 30% reported engaging in PD in the last three month, nearly half reported engaging in PD over the past year. In all four countries, the most common form of engagement in PD was blended, that is, mostly done outside school hours with some during school hours (see Table 11).

Last professional development opportunity	Country			
	Austria	Hungary	Malta	The Netherlands
Past 3 months	14 (58.3%)	6 (30%)	10 (50%)	47 (68.1%)
3 to 6 months	4 (16.7%)	3 (15%)	3 (15%)	10 (14.5%)
6 to 12 months	1 (4.2%)	2 (10%)	4 (20%)	7 (10.4%)
Over a year ago	5 (20.8%)	9 (45%)	3 (15%)	5 (7.3%)

Table 10: Last PD opportunity

Engaging in professional development	Country			
	Austria	Hungary	Malta	The Netherlands
Completely during school hours	1 (4.2%)	0	1 (5%)	11 (15.9%)
Mostly during and some outside school hours	7 (29.2%)	2 (10%)	4 (20%)	19 (27.5%)
Mostly outside and some during school hours	12 (50%)	9 (45%)	10 (50%)	28 (40.6%)
Completely outside school hours	4 (16.7%)	9 (45%)	5 (25%)	9 (13%)
Other	0	0	0	2 (2.9%)

Table 11: Forms of engagement in PD

Forty-five percent (9 out of 20 teachers) of the Hungarian respondents reported that everything was good about their last PD activity; they did not remember anything that they did not like. Things that the other Hungarian teachers did not like were highly divergent. Two teachers mentioned that it is difficult to participate in PD in addition to work and caring for family. Another two mentioned that the online format was not effective enough and that the training was more like a conference and not interactive. Other negative elements mentioned by other teachers were that the training: was too theoretical and not sufficiently practical; was not in line with the school reality; was delivered too fast; did not allow them to try out new skills; was not deep enough; and was built on false information.

All respondents at the Hungarian IT institution thought that PD is important. Most expressed a belief it is so because of fast developments, which were mentioned in three areas: (1) fast development of our world (without any further details); (2) fast change of students and student needs; and (3) technical developments. Respondents said that PD energizes, inspires, and motivates teachers as well, but most importantly, protects them from burn-out. Several teachers mentioned that PD helps to maintain and develop teacher knowledge and methodological skills. Two teachers also mentioned negative aspects: one regarding the role of further training that “many are only about obtaining the mandatory credits” while another referred to the small amount of time available for teachers to do PD.

For the respondents in the VET institution in Malta, it was important to keep up to date through PD because “a teacher needs to remain relevant and effective throughout one’s career, particularly in an ever-changing educational landscape”. Another commented that “PD improves one’s knowledge and skills and provides an opportunity to share experience and receive advice”. For another respondent “students stand to benefit when teachers continue with further learning”.

At the Austrian institution, respondents reported that training is important to stay up-to-date and “to keep up with current industrial best practices”. According to most “technologies and knowledge changes rapidly” and undertaking training is a must as “otherwise it would be difficult to prepare students for their working life”. Others commented that training is important “to understand your role as a teacher and the positive and negative impact this has on the learning process of the students involved”.

All teachers at the VET institution in The Netherlands indicated that PD is very important to them. There were two teachers who said it is only important under certain conditions, stating that “It should not be an end in itself” and “After a large number of years of teaching, you have learned enough”. Another six respondents indicated that PD is important, but then did not substantiate their answer. Of the teachers who did give a substantiation, 39 referred to (continuous) changes and/or developments as the main motivation to want to continue to professionalize. As one of the teachers wrote: “The only way is to keep connected to the change. Stagnation is declining.” In doing so, a large number of teachers referred to aligning with:

- Changes in the field
- The changing student population
- The social changes
- The educational developments/newly acquired insights regarding learning and didactics

32 teachers mentioned several of the above areas in their substantiation.

In addition to the reasons mentioned above, the following reasons were also mentioned:

- Personal motivation. Answers that fell under this category focussed on the added value for the person of the teacher him or herself. E.g.: "I get energy from learning new things" and "It keeps me on my toes".
- Role model. The mentioned substantiations included: "It cannot be the case that we as teachers are behind the facts", "If we expect students to embrace the 'lifelong development', then we cannot be left behind ourselves" and "We also have an exemplary position: learning is fun!"

The two most highly rated barriers to PD were: (i) conflict with work schedule and the lack of time or space to work with colleagues; and (ii) family responsibilities and work commitments (see Table 12). PD being too expensive and lack of suitable opportunities were more highly rated barriers in Hungary and Malta, than in Austria and The Netherlands. On the other hand, lack of employer support, lack of personal motivation due to irrelevance of PD and formal recognition did not appear as significant barriers to VET teachers in the four institutions to engage in PD.

Hungarian respondents emphasized primarily that good training provides progressive, new perspectives and knowledge, and practical skills. Most preferred training to be online. They also mentioned that a prior Erasmus+ project, in which they had participated, had provided relationships with foreign institutions and an opportunity to directly learn about other educational systems. They also considered creating social capital as a benefit.

Respondents at the Austrian VET institution reported the need for opportunities to collaborate with others, such as training opportunities abroad, while others mentioned industry-based courses. Respondents said that such training is important for the improvement of teaching through the support provided. One participant mentioned that teachers should be involved in the design of such courses, be provided with detailed information about the course and also have courses on "more current topics". Another requested training to be online and to involve self-reflection. One teacher also mentioned a particular challenge and wrote about potential incentives to engage teachers in PD.

"Due to this not being part of our 'paid' duties – coaching and mentoring students as well as PD are not taken seriously by all colleagues. It all depends on the individuals' motivation to do so. Thus, I feel that incentives are needed so as to motivate more teachers to engage in professional development activities/courses".

Barriers to PD	Country			
	Austria	Hungary	Malta	The Netherlands
Conflict with work schedule	14 (58.3%)	11 (55%)	12 (60%)	45 (65.2%)
Lack of suitable opportunities which fit my learning needs	8 (33.3%)	10 (50%)	10 (50%)	20 (29%)
Family responsibilities and work commitments	11 (45.8%)	11 (55%)	14 (70%)	29 (42%)
Too expensive	7 (29.2%)	10 (50%)	9 (45%)	11 (15.9%)
Lack of employer or institutional support	4 (16.7%)	6 (30%)	7 (35%)	7 (10.1%)
Lack of time or space to work with colleagues	10 (41.7%)	8 (40%)	7 (35%)	27 (39.1%)
Lack of personal motivation due to irrelevance of PD	3 (12.5%)	0	3 (15%)	3 (4.3%)
Lack of formal recognition of PD opportunities	7 (29.2%)	7 (35%)	3 (15%)	9 (13%)
Other	0	0	0	6 (8.7%)*

Table 12: Barriers to PD

** Not enough time/ too busy with current work; prioritizing tasks; professionalization is on the agenda but it is not a continuous plan, not controlled enough by the team leader or is not clear/transparent to the teacher; and the department does not see any added value.*

For the VET teachers in Malta, respondents mentioned the relevance of training as one of their top priorities. They also find frequency of opportunities essential, together with the chance of visiting other institutions teaching the same subjects. Most stated that they “need time to digest what they learn” and “experiment with or practise new ideas” they receive. They also referred to how they “need feedback and support from their superiors”.

To address their professional needs, teachers at the VET institution in The Netherlands identified the following aspects:

A system with professionalization options

Teachers feel that they do not have a clear picture of the professionalization options. They want more clarity about the professionalization options available. They believe that this should be better mapped out. A number of teachers suggest doing this in a digital system. This system should give a clearer overview of the courses that are offered as well as the available budget. A more direct and accessible way to the professionalization options is requested. Some teachers also think that the options are rather limited and that options outside the institution should also be available at any time.

More time/facilitations

These teachers believe that more time and money should be made available for the development of teachers. Some teachers also feel that they are obliged to do their professionalization in their spare time. They prefer time to be set aside for professionalization during work hours.

Professionalization plan

Teachers believe that their professional development is their own responsibility. However, they think that a lot of self-direction and action is expected from them at this moment. They would like their learning needs to be discussed more explicitly in job evaluation conversations and included in a professionalization plan. In this way, more attention for their development will be created.

Demand-driven

Teachers believe that the professionalization options should be better adapted to their personal needs. They prefer professionalization that is more custom made; one teacher even suggests individual guidance on individual learning needs.

Learning at team level/together

A number of teachers feel the need to professionalize at team level. It is suggested to make a plan at team level and together grow towards a more professional team.

Two teachers opt for more professional learning communities and one teacher feels the need to observe each other's lessons more.

Demand for specific themes

Ten teachers identified specific themes on which they would like to be professionalized.

- More attention for novice teachers
- On the job guidance
- Coaching
- Curriculum design
- Developments in industry
- Offer new online teaching methods
- Modern VET-didactics

Respondents in the four VET institutions appeared to agree that the responsibility for organising PD lies within teachers and their heads of department (see Table 13). Moreover, Hungarian VET teachers also reported that members of the school leadership team need to be responsible for this, while those in Austria see that outside experts also play a key role.

Responsibility for organising professional development	Country			
	Austria	Hungary	Malta	The Netherlands
Teachers	16 (66.7%)	15 (75%)	9 (45%)	52 (75.4%)
Heads of department	13 (54.2%)	15 (75%)	12 (60%)	44 (63.8%)
Members of school leadership team	11 (45.8%)	18 (90%)	10 (50%)	25 (36.2%)
Experts from outside school	16 (66.7%)	9 (45%)	5 (25%)	22 (31.9%)
Other	0	0	2 (10%) – teachers together with institution	6 (8.7%)

Table 13: Responsibility for organising PD

Respondents from the VET institution in Austria said that the most positive aspects of PD related to “opportunities for communication and the exchange of professional experiences”, collaboration and networking. Others mentioned that PD offered practical examples, was related and useful to the job, and helped them to improve their skills. Hence, the general request was to focus less on theory and more on practice. Others commented that the fact that the course is voluntary, is delivered by experts in the field and is offered online, are among the effective features of PD. On the other hand, others felt that face-to-face delivery is better. It appears that providing teachers with the time to implement the ideas promoted in PD is also essential. Some noted that sessions do not have to be too long or “carried out on Saturdays”. Others claimed to encounter timetable issues when trying to attend PD and think that it should “be part of the official teacher training programme”. One respondent wrote on the preparations involved.

It goes without saying that it is important to prepare your lessons well. But I do not see any point that you have to put in almost more effort for the preparations than for the lesson itself. I do not understand why you have to jot down everything on the preparations in such detail.

Respondents within the Hungarian institution noted that teachers' workload should be reduced and that training should not be paid by the teachers themselves. Several teachers emphasized that it is very important that PD should contribute to knowing each other better within the school and across schools and countries. One teacher also mentioned visiting colleagues' classes as a need, which is very important in light of the LS4VET project. They also considered it very important that PD should mean methodological development as well. Many emphasized that PD should directly lead to results applicable in practice. Respondents expressed a belief that the usefulness of training would largely be improved if there were more specific information available about them and if development courses would assess participants' existing competences.

Respondents at the VET institution in Malta provided a variety of reasons about what they liked about their last PD experiences. Some respondents said that "the topics were informative, useful and directly related to their practice"; others mentioned the fact that the "training was online"; while others stressed that "the training targeted their specific professional needs". Some respondents liked the fact that they could interact with the trainer and the other participants, and that the atmosphere induced a sense of integration and professionalism. On the other hand, negative factors related to PD included that the training was too long. Others said that it was compulsory and not relevant to their work or professional needs, or that the mode of delivery was not appropriate. They mentioned, for instance, that they did not like the fact that: it was offered online; sometimes it was delivered in a very quick time frame with no opportunity to digest what they learnt; and it also clashed with their deadlines and other work commitments.

At the VET institution in the Netherlands, respondents identified the following positive aspects of their last PD engagement:

Learning from each other

Teachers appreciate learning with other teachers or colleagues. During these moments, teachers can exchange experiences, each other's points of views and ideas, have discussions and enter into a dialogue with each other. Specifically, peer-to-peer learning/intervision was mentioned by multiple teachers as a team learning moment.

Learning new content

Teachers feel that they have gained new insights and inspiration during the professionalization activities. Courses revived or broadened their knowledge. Teachers also appreciate it when the course is about their subject/field/domain, as they enjoy working with their field/domain/subject.

Practice-oriented

Teachers value practice-oriented courses in which the content is directly applicable in their teaching. According to teachers, the courses should be directly in line with their teaching practice. Also, practising and experimenting with the PD content should take place immediately.

Team learning

A number of teachers indicate that following professionalization with their own team is valuable. They value the process of finding commonality in the team, for example about their vision. An open atmosphere in the team is important here.

Connection with industry

They value involvement or connection with industry during the professionalization.

Timing

Some teachers like the fact that they can choose when they take the course, and can therefore organize their own time. There was also a teacher who liked the fact that the professionalization had a fixed moment and that his agenda was cleared during those moments.

Self- reflection

PD activities which stimulate teachers to reflect on their actions and professionalism.

Autonomy

Two teachers liked that their own initiative/ideas were requested when choosing the professionalization activity.

On the other hand, the same teachers did not like the following PD aspects:

Online

At the time of the questionnaire completion, there is a COVID-19 pandemic, so many professionalization courses are online. The teachers prefer live courses. In online courses, they have to learn to work with the tool, and they think they have to sit down for long periods.

Not enough Interaction

This is mostly related to the fact that most courses were online. Teachers felt that the online courses did not stimulate interaction between teachers. They missed the interaction and felt less involved because of that.

Critical towards content

These teachers are critical of the content. They feel that too much input is provided in a short period of time, the goal of the professionalization is not clear to them, or they think it is too practical and does not go into depth enough. They are also critical of the supervisor's expertise and their ability to differentiate.

Time

Teachers believe that professionalization tasks take a lot of time. Because they are busy with other work tasks, they feel time pressure or feel forced to do their professionalization on their own time.

Content not new

These teachers indicated that they have not learned anything new during the professionalization. The content was already known to them, or it was about a topic that they were not interested in learning further about.

Other colleagues/participants

The things mentioned include that PD participants' visions sometimes differ, other participants are not always motivated, or find it difficult to attend if it is not compulsory.

Restrictive professionalization options

These teachers have a hard time finding a course that fits their schedule or that fits their learning needs.

Not continuous

These teachers show dissatisfaction that the course is a one-off or that its content must be continued in another PD course.

Format of the course

Teachers complain about lack of variety in PD course, a high element of repetition, and messy.

4. PARTICIPANTS' USE OF DIGITAL CONTENTS AND OPEN EDUCATIONAL RESOURCES FOR TEACHING

Data shows that teachers in the four country VET institutions use articles and e-books, pictures and figures, and presentations quite often in their teaching (see Table 14). However, they use simulations and animations less frequently. Video tutorials, educational films and podcasts are also used often by participants in Austria, Hungary and Malta, but are rarely used by participants in The Netherlands. Online games are also rarely used by participants in all country VET institutions.

Open educational resources	Country			
	Austria	Hungary	Malta	The Netherlands
Articles, e-books	Often 13 (54.2%)	Often 12 (60%)	Often 11 (55%)	Often 36 (52%)
Pictures, figures	Often 23 (95.8%)	Often 18 (90%)	Often 16 (80%)	Often 37 (53.6%)
Presentations	Often 23 (95.8%)	Often 10 (50%)	Often 18 (90%)	Often 42 (61%)
Simulations, animations	Sometimes 10 (41.7%)	Sometimes 7 (35%)	Sometimes 7 (35%)	Sometimes 22 (32%)
Video tutorials, educational films, podcasts	Often 14 (58.3%)	Often 15 (75%)	Often 13 (65%)	Rarely 24 (35%)
Online games	Rarely 16 (66.7%)	Rarely 9 (45%)	Rarely 10 (50%)	*

Table 14: Use of digital content and open educational resources for teaching (responses of highest rates for each country are reported here)

*Indicates that data was spread almost equally across all options with no clear preference.

Digital content	Country			
	Austria	Hungary	Malta	The Netherlands
Office documents (PPT, DOC, XLS, MDB)	Often 21 (87.5%)	Often 16 (80%)	Often 17 (85%)	*
Videos created by video editing applications	Rarely 13 (54.2%)	Rarely 11 (55%)	Rarely 12 (60%)	*
Videos recorded with mobile devices	Rarely 15 (62.5%)	Rarely 13 (65%)	Rarely 17 (85%)	Rarely 32 (46%)
Podcasts	Rarely 23 (95.8%)	Rarely 18 (90%)	Rarely 19 (95%)	Rarely 39 (56%)
Animations	Rarely 19 (79.2%)	Rarely 12 (60%)	Rarely 16 (80%)	Rarely 29 (42%)
Interactive assignments (quizzes, tests)	*	Often 17 (85%)	Often 12 (60%)	*
Online questionnaires	*	Often 11 (55%)	Often 10 (50%)	*
Online voting tools	Sometimes 11 (45.8%)	*	Rarely 10 (50%)	Rarely 26 (38%)
Online concept maps	Rarely 18 (75%)	Rarely 13 (65%)	Rarely 14 (70%)	*
Digital timeline	Rarely 17 (70.8%)	Rarely 16 (80%)	Rarely 14 (70%)	Rarely 29 (42%)
Generate Creative Commons license	Rarely 18 (75%)	Rarely 16 (80%)	Rarely 13 (65%)	Rarely 36 (52%)

Table 15: Creating and/or editing digital content

*Indicates that data was spread almost equally across at least two options with no clear preference.

Table 15 shows that with regards to creating and/or editing digital content, it appears that teachers in all countries rarely use videos recorded with mobile devices, podcasts, digital timeline and generate creative common license. On the other hand, they often make use of office documents. Teachers in all countries also make use of online or offline applications used for creating or sharing digital contents for communication and collaboration (see Table 16). For example, teachers report that they often create content using Word, Excel and Learning Apps and communicate and deliver online lessons using the various social media tools and platforms. With the exception of teachers in Malta (40%), teachers in the other three countries report more frequent collaboration with colleagues using the school platform and Google drive. In all countries, with the exception of Hungary, teachers report that online collaboration with students is not commonly used.

Online and offline applications	Country			
	Austria	Hungary	Malta	The Netherlands
Creating content (Word, Excel, Learning Apps etc.)	23 (95.8%)	20 (100%)	18 (90%)	64 (92.8%)
Sharing content (on YouTube, Facebook, in blogs etc.)	11 (45.8%)	14 (70%)	8 (40%)	27 (39.1%)
Communication (MS Teams, Zoom, Skype, etc.)	21 (87.5%)	13 (65%)	20 (100%)	64 (92.8%)
Collaboration with students (Google Drive, MindMeister, etc.)	8 (33.3%)	13 (65%)	7 (35%)	32 (46.4%)
Collaboration with colleagues (Own platform of the school, Google Drive, etc.:)	17 (70.8%)	20 (100%)	8 (40%)	39 (56.5%)
Delivering online lessons (Google Classroom, Moodle, MS Teams, etc.)	20 (83.3%)	20 (100%)	17 (85%)	Not available

Table 16: Use of online and offline applications

Within the four institutions, survey participants also reported an average to advanced level of personal digital competences (see Table 17). This reported competence appears stronger in Austria, Hungary and The Netherlands than in Malta. It is important to mention that around 60% of respondents in both the Austrian and Hungarian schools have advanced or expert digital competences - which might be related to the fact that these schools provide VET in IT.

Level of personal digital competences	Country			
	Austria	Hungary	Malta	Netherlands
Basic	2 (8.3%)	0	4 (20%)	15 (21.7%)
Average	7 (29.2%)	8 (40%)	11 (55%)	30 (43.5%)
Advanced	10 (41.2%)	7 (35%)	3 (15%)	23 (33.3 %)
Expert	5 (20.8%)	5 (25%)	2 (10%)	1 (1.4%)

Table 17: Assessing level of personal digital competences

As Table 18 shows, participants in all four VET institutions appeared interested to participate in an online course for VET teachers on lesson study, active learning methods and digital education.

Interest in participating in lesson study and e-learning course	Country			
	Austria	Hungary	Malta	Netherlands
Yes	14 (58.3%)	15 (75%)	16 (80%)	51 (73.9%)
No	3 (12.5%)	2 (10%)	1 (5%)	5 (7.2%)
Not sure	7 (29.2%)	3 (15%)	3 (15%)	11 (15.9%)

Table 18: Interest in participating in lesson study and e-learning course

5. CONCLUSION

This questionnaire was conducted with teachers in four VET institutions within the four partner countries. The responses received are not representative of the teachers within each institution - also given that the response rate in some countries was relatively low (e.g., Hungary 20% and Malta 42%). Hence, we foresee a limitation which suggests caution in interpreting the responses obtained. This warrants no generalizations about teachers' views within project countries and possibly not even to the four institutions themselves. Having said that, we think that important information has been gathered that can be used productively to design an effective and context-sensitive LS for VET model and e-learning course.

While the findings suggest a number of similarities among teachers across the four VET institutions, there are key differences. In their teaching practices, teachers reported using demonstrations, student presentations, and problem-based learning, frontal/lecture-based and discussions. In the four VET institutions, the lowest reported teaching and learning practices were design-based learning, game-based learning, flipped classroom and industry fieldwork.

While all teachers reported a high level of importance attached to PD, they reported positive experiences to a lesser degree (also possibly because they did not have opportunities to participate in these) with observation visits, participation in online networks, peer observations or having a critical friend, engaging in different modalities of PD, formal professional learning communities, and engaging in collaborative practices with colleagues. This finding about an apparent lack of positive collaborative opportunities may have implications to the model and support in enacting lesson study within each institution.

The two commonly and highest rated barriers to PD were conflict with work schedule and the lack of time or space to work with colleagues, and family responsibilities and work commitments. Respondents expressed less common PD experiences related to observation visits, participation in online networks, peer observations or having a critical friend, engaging in formal professional learning communities, and engaging in collaborative practices with colleagues. Participants were also in agreement that the responsibility for organising PD should lie within teachers and their heads of department. Indeed, these findings shed light on the importance of coordinating the initiation of lesson study with the support of each institution's leadership team, exploring how to promote and cultivate collaborative practices and also clearly communicating the role that teachers need to take in owning their lesson study experience. An important result is their reported willingness to participate in an online LS experience.

With regards to the use of digital content, teachers in the four country VET institutions use articles and ebooks, pictures and figures, and presentations quite often in their teaching. However, they use simulations and animations less frequently. While teachers often use office documents and make use of online or offline applications for creating or sharing digital contents for communication and collaboration, it appears that teachers in all countries rarely use videos recorded with mobile devices,

podcasts, digital timeline and generate creative common license. These findings suggest that, in designing the LS model, we need to draw on teachers' knowledge of their use of digital content. We would also need to provide supporting structures that may extend this learning about the use of digital technologies for lesson study.

Finally, given the difference in the VET contexts within the four countries, we think that when designing the LS programme and the e-learning course, the design needs to allow for a measure of flexibility that permits the project partners to have some implementation leeway that would respect their country context and also that of their partner VET institution. It is important to note that this should not be done at the expense of possibly destabilizing the comparative dimension of the project.

6. APPENDIX 1

List of subjects taught at the VET institution in the Netherlands

Individual 'coaching'

- Coaching (16)
- Professional orientation (3)
- Professional skills (2)
- Social skills (5)
- Career and citizenship (4)
- Intervision (=peer-to-peer learning) (3)
- LWP (=authentic projects) (5)
- Internship-guidance (3)
- Assessment

Elective choice of study (can be VET- or generic-oriented)

- Preparation and introduction
- Farm animals
- digital skills (2)
- entrepreneurial behavior (2)
- 'action is reaction'
- 'higher professional education' (2)
- 'working with babies'
- 'expressive talent'

Generic

- Arithmetic (6)
- Dutch (5)
- English

VET

- Group in pictures
- Fertilization, soil, organic farming, etc.
- Chicken/CE
- Other mammals/aquarium/rabbit&rodent/dogs and cats
- Care and well-being social care
- Procedures & Law; Tax Knowledge; Presenting; Orientation Payroll; Business economics
- Commercial, Depreciation, Goods Flow, Goods Flow and Inventory Management, Market Research.
- King games
- All subjects within social care
- Helping care and being/ employee facility services.
- Anatomy/disease theory (2)
- Combi courses focused on Education
- Law, Marketing, Commercial Calculations, E-commerce, Market Research
- AFP (outpatient forensic psychiatry) (3)
- Nursing (5)
- VPT (Full care at home) (3)
- Raids on Skills
- VVT (Nursing and Caring at home) (6)
- GGZ (Mental Health Care) (2)
- GZH (Health Care Centre)
- ZH (hospital) (5)
- ADL (General Daily Activities) (3)
- VTH (Permits Supervision and Enforcement) (2)
- Take care modules,
- Field floor, Electives
- Psychiatry, sexuality, etc.
- Everything for GZ (mental health care) except generic
- Observing and reporting
- Not specifically identifiable. Mainly courses focused on the process of learning and development, both in the profession and on the transition to further education.
- Conflict management, conversation skills, working with care plan, music (visual and music), psychological currents, psychiatric illnesses, etc.
- Adult education
- Working with a support plan, dealing with crisis situations in the MZ (social care)
- School Maturity, Class Management, Executive Functions
- Business economics, administration, practical lessons, generic
- Crisis intervention.
- Retail courses
- Sales figures, Presentation & Marketing, Project-based work, Archiving, Post and E-mail processing
- Vocational lessons BBL (this includes all theory and practical subjects)
- Sales, Marketing
- English Service courses.

- Nutrition, point of contact, administration, basic ICT skills, cleaning and furnishing, living and household, expertise promotion, meal preparation, building management, logistics, catering, planned work
- Development and Activity, Pedagogical Climate
- Developmental psychology, activities in learning-the care pupil
- Vocational-specific lessons
- All kinds of economic subjects, such as marketing, sales, business economics etc.
- Nature and environmental education, visual education, sexuality and intimacy, reporting code child abuse
- Drama, communication, child in pictures, reading aloud
- Agogic subjects in the form of modules related to care and well-being