Co-funded by the
Erasmus+ Programme
of the European Union

LS4VET

Lesson Study

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

IO1-A3 Final Report

Identifying relevant VET-specific factors

Interview analysis

Organization: Eötvös Loránd University
Author: Eszter Bükki, Prof. Dr. János Győri
Last update: 09.06.2021
Reviewers: LS4VET partners
Outcome: LS4VET Model (IO1)
File name: IO1_A3_LS4VET_final_report_09062021.docx

"The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

TABLE OF CONTENTS

1. INTRODUCTION

This final report is the outcome of IO1-A3: Identifying relevant VET-specific factors in the LS4VET Erasmus+ project. The objective of this activity was to collect data about the organisational and individual conditions of conducting a Lesson Study:

- in VET schools in the four partner countries in general, in order to help design our LS4VET model, and
- specifically in our partner schools, in order to assist planning the piloting of the model of LS4VET.

Data was collected through semi-structured interviews made by HEI expert partners of the LS4VET project (ELTE, PH NÖ, UM, and UAS) at NJIT, HTL Wiener Neustadt, ITS and LS, our partner VET schools in the LS4VET project. The interview plans were prepared by ELTE, reviewed by all LS4VET partners. Interviewees were selected from three target groups:

a] School leaders (principal, vice principal)

b] Head of a formal teacher team (hereinafter referred to as teacher leader, e.g. subject department, Dutch multidisciplinary teacher team)

c] Practising teachers - preferably one of each VET teacher 'profiles' if such are differentiated (e.g. teachers of general subjects versus teachers of vocational subjects)[1]. Most importantly, teachers who teach in different contexts/formats: classical 'class' format, practice in a school workshop, work simulations etc.) were involved. However, the target group only involved teachers employed in VET schools, excluding trainers at workplace settings.

The interviews were held online in the national languages and took about 45-60 minutes. The recorded interviews were analysed by ELTE, PH NÖ, UM, and UAS, who prepared English-language summary analyses of the interviews, based upon a template provided by ELTE.

The interviews focused on identifying factors that are relevant for the adaptation of the methodology of Lesson Study for the sector of VET in the different contexts of the four partner countries. Our main research questions were:

- How innovative and open to renewal are our partner schools? What is the teachers' and school leaders' attitude towards innovation and professional development like?
- In what forms do teachers currently collaborate and learn from each other in our partner schools and what is their attitude towards collaboration and learning from each other?
- What different types of 'lesson' (regular class, workshop practice, projects, simulations etc.) and what research themes are relevant to lesson study (LS) in our partner VET schools in these four different VET systems?
- To whom is participating in a lesson study in VET relevant and what are their incentives to participate in a lesson study? What types of LS team composition are possible and viable in these four VET systems in general, and in our partner schools in particular?

[1] 'Teacher profile' here refers to different types of teachers working in VET, who can be differentiated by any aspect that might be relevant in respect of adapting LS for VET (e.g. different work context: form of 'lesson', time and spatial separation etc.). Whether there are different teacher profiles and whether this is at all relevant for our project very much depends on the national VET system.

- What would the main challenges of conducting LS in VET in general and in our partner schools be like and how could these be resolved? How can the logistics of the piloting (time, space, and funding) be ensured in our partner schools?
- What role(s) can and do school and teacher leaders want to play in the implementation of LS and how can their involvement be encouraged?

This final report consists of three main sections. First, in section 2, we present the four national summary reports prepared by the national experts[2]. Next, in section 3, we provide a comparative analysis of the topics explored in the interviews, identifying common and divergent features. Finally, in section 4, we summarize the main points learnt from the interviews that should be taken into account when designing LS4VET Model (IO1), the LS4VET course (IO2) and the LS4VET pilot (IO3).

In addition to the interviews, we also asked LS4VET partner schools and HEI experts to provide information about the school and teacher profiles by completing templates. Data provided by the partners is presented in Tables 3-6 in the Appendix.

2. NATIONAL REPORTS

2.1 AUSTRIA

Industry-based teachers in higher technical colleges in Austria do not require a degree in education. They must show at least four years professional experience and are required to attend educational training and studying while being employed at schools.

The school leader has been teaching since 1999 and has held the position of school leader since 2012. She has a degree in architecture and brings professional experience as an architect and entrepreneur. She only teaches a few lessons a week in construction engineering.

The teacher leader has been in this position since 2007 with a two years break. He has been teaching since 1991. He has a degree in computer science and brings professional experience in business information systems and project management. Prior to his teaching career, he worked in software engineering, marketing, and procurement for ten years. In addition to this, he has held a trade license since 1986. Currently, he is lecturer in tertiary educational institutions with a commitment of two to four weekly hours per term. At school, he teaches IT subjects and is responsible for project-based teaching. He also supports students working on their project-oriented diploma theses. Due to his highly time-consuming job as teacher, the activities related to his trade license have declined sharply.

The VET teacher has been teaching full time since 1998. He is university qualified in computer science, worked as assistant professor at a technical university for four years, during which he also developed software, and then worked as software developer for a period of two years. His trade license is currently suspended due to lack of time. He teaches programming and software engineering and the optional subject offerings in robotics.

The organizational structure at the HTL enables middle management with teacher leaders, who operate as heads of department. In every department there are industry-based teachers and general educators. Teachers are granted their own areas of responsibility, but there is mutual cooperation with

[2] The authors of the national reports are: National Report Austria: Michaela Tscherne (PH NÖ), National Report Hungary: Eszter Bükki, János Győri (ELTE), National Report Malta: James Calleja (UM), National Report Netherlands: Marloes van der Meer, Anne Khaled (UAS)

other departments. All three interviewees confirm that teamwork is very important, and there is satisfactory cooperation within the department. However, there is little to no team-teaching due to the requirements of the curriculum. There are no formal profiles, only subject-specific task descriptions. In the IT department, there are several technical fields, e.g., databases, programming, and diploma projects. The teacher leader and the industry-based teacher emphasize the importance of teaching in English. The industry-based teacher emphasizes that it is important for IT specialists to be able to express themselves well in English and German.

All three probands confirm that it is common to work part-time in the private sector. In fact, it is explicitly welcome by the school leader in order to stay up to date with regards to technological progress. It is also confirmed that due to the high administrative workload and time-consuming teaching activities, many teachers do not have time to work in the private sector alongside their teaching activities. In the IT department, there is only a small percentage of teachers who have a sideline job. The interviewed teacher says that 25% of teachers in his department have a job outside of education. The teacher leader states that there is a great variety in staff. 2-3 colleagues in the IT department work regularly in the private sector between 5-10 hours per week. Just one colleague has a full-time job in the private sector. One colleague splits his time evenly between teaching and working in the private sector. Some teachers are actively engaged in voluntary work.

All interviewees report a friendly and open working atmosphere. Motivation is important to the school leader. The teacher leader emphasizes shared commitment to good quality teaching. The team culture in the department is largely appreciative and supportive.

At the HTL, there are 50 min classes, double unit classes, and individual units in the laboratories and workshops. For higher grades, project teaching is preferred. In the 4th and 5th grade there are projects in cooperation with external partners. In principle, there are different forms of organizing teaching, and the school adapts planning classes to individual circumstances, according to the school leader.

In the IT department, there are theory lessons using lectures. During the practice lessons the students work independently. Assignments are provided on the online platform Moodle and the teacher is available to provide support if questions arise. In software engineering, there are primarily project lessons. In robotics, teachers use alternating methods of teaching, e.g. practice lessons, mini-lectures in theory, and lessons in which students build robots using Lego bricks. A mentoring system has been introduced in the optional subject of robotics, where older students support younger ones. Higher grade students are obliged to work in teams to write their diploma thesis within the framework of a project.

In programming, students mainly work individually, though they do occasionally work in teams. In robotics, students work in teams of two since there is not enough equipment available for all students.

Teachers in the IT department meet in a large teachers' room with an attached coffee kitchen, where informal arrangements are made during short meetings. Teachers can work together when preparing lessons due to an arrangement of tables in groups of four. The school leader cites that the spatial separation refers to the size of the school. The school leader had walls removed in the departments to create common teachers' lounges, in order to improve informal communication processes. The colleagues who teach programming cover the same range of material, resulting in a comparable quality of teaching.

The teacher leader supports the teachers by keeping bureaucracy low in order to relieve them. He performs management tasks, continuously supports the teachers, develops practical proposals, and encourages dialogue.

The school leader states that she has begun to gain insight into what is happening in the classrooms through "classroom walk-throughs," which tend to be opposed by the staff committee.

There is a quality management system at school that is used to gather and evaluate feedback. According to the school leader, many teachers consider evaluation as control, which is not the case. The teacher leader states that the feedback process is not formally regulated and there are no performance reviews in the traditional sense of HR. However, there is a strong focus on performance. When class performance is poor, the teacher leader and the teacher in question jointly agree on actions. The teacher leader contributes ideas, offers support, and provides resources. The school leader also confirms that teachers are supported by the heads of the departments.

The teacher leader emphasizes the importance of informal support. Observations are only conducted when new teachers are being trained.

The school leader states that she has always tried to ensure a positive atmosphere at school and has granted independence and personal responsibility to all teachers. The teacher states that there is hardly any feedback from supervisors/teacher leaders. However, he confirms that the teachers use their freedom to develop and choose methods of teaching that are best suited to their specific groups of students.

According to the school leader, there is a strong feedback culture. Teachers gain feedback spontaneously, informally or formally. The teacher confirms that the school leader encourages teachers to gain feedback from students as often as possible. The data-based analysis reports of feedback stay with the teacher. The teacher goes on to state that teachers only get little feedback from the teacher leaders; the teacher has not received feedback within a performance review meeting for a long time. There are always discussions and arguments with the leaders when it comes to the extraordinary budget for the optional subjects. The teacher further states that the leaders do not encourage teachers to ask them for feedback. Teachers may get cause-related feedback, e.g., when a student complains to the school leader. Feedback based on student performance is also briefly addressed in the conferences. Results of feedback evaluation from teachers are kept by school leaders or teacher leaders and are not published or shared with the teachers.

New teachers are welcomed in a meeting with the teacher leaders, and each new teacher is assigned a mentor for support. Teacher leaders provide support to new teachers. In addition, new teachers are given a manual providing the most important facts about the school.

In the IT department, there is a diverse team of 35-38 teachers, 30 of them in the core team, 20 of them are IT specialists. The roles in the team result from needs and professional fields, depending on knowledge, needs, and preferences, e.g., Erasmus or agile project management. The common goal of all members in the IT department is to achieve high quality in education and highest recognition for graduates.

According to the school leader, the exchange of teaching materials works best in the IT department, which is confirmed by both the teacher and the teacher leader. There are different approaches, e.g. WIKI platforms. Information is shared on demand. There has been a Moodle platform for two years where files can be shared, but there is no formal, systematic way to disseminate knowledge within the department. Since there are hardly any school books with appropriate assignments and tasks for programming, there is a crucial need for an exchange of teaching materials to find appropriate teaching materials to fit the students. The leader of the school adds that new teachers offer innovative ideas when they return from teachers‘ initial training sessions, which results in a good exchange. Only the

leader of the school states that the exchange of teaching materials does not work sufficiently with senior teachers, but the majority of teachers generously share their teaching materials.

There is little feedback between the teachers, as there is no team-teaching and no observation of lessons. However, in robotics there is team-teaching and a very close, very good cooperation with the second teacher. The curriculum does not allow team-teaching, so the exchange only takes place when groups are divided. The teacher leader highlights the best practice example of the learning workshop, using a collaborative platform. In general, all probands emphasize the good organization of collaborative work in the IT department. "Classroom walk-throughs" by teachers to share knowledge and experience in classes are only reported by the school leader, not by the teacher leader and not by the teacher. The school leader is the only person mentioning the annual focus of the school, which she describes as process to unite departments and teachers of all subjects. It is considered to crosslink the departments, subjects, teachers from other departments, for example sustainability, renewable energy, environment.

There is no joint research, just experiments in robotics, where collaborations and projects occur in the learning workshop. Occasionally, there are joint training courses, including interdisciplinary ones, related to certain topics. Due to fast technological change, short product life cycles, and a close relationship with the business world, there is hardly any appropriate training for IT being offered by the University College of Teacher Education. The school leader emphasizes that one teacher works some hours a week at the University College of Teacher Education. He offers support by planning and organizing training courses when needed.

All interviewees cite different timetables as major barriers in everyday school life. The teacher illustrates that cooperation across the department is very difficult because of individual timetables, and consequently, there is no margin for collaborative lesson planning. A flexible schedule would enable the project team to combine its members and other teachers in ways that make the most of everyone’s time. The school leader adds that due to the size of the school, there is a spatial separation of the departments. The teacher leader considers the continuous efforts due to rapid change in the IT field as a challenge in everyday teaching, as well as the open curricula and the different views when coordinating within the team. The teacher leader provides support by taking on administrative tasks to keep the bureaucratic burden on teachers low and to maintain dialogue.

None of the three interviewees confirm experience with LS, but the school leader and the teacher leader indicate that they have already worked in this direction. Both the teacher and the teacher leader suggest an interdisciplinary team. The teacher leader suggests a team consisting of 4-6 people, including four teachers from the IT department and two teachers in the field of general education or a learning coach to allow outside views. The teacher leader himself would also like to participate in the project. The teacher underlines the importance of the subjects German and English in the project, since IT specialists must be able to express themselves in an appropriate way. Thus, he claims a balanced literacy approach. The school leader would also like to participate in some way. She proposes the idea of drawing the concept of LS across all departments in the future. She would like to introduce LS in the context of a school development day. When it comes to topics, there are three different proposals. The teacher would like to focus on performance assessments in programming, because the issue of individual assessments is a big challenge in this subject. The school leader would like to focus on motivating students in terms of methods of teaching and learning. The teacher leader has a different approach in mind, and would like to focus on the point of students' ability to abstract and analyze processes for under 17s. He wonders how to support students learning in subjects such as mathematics or programming, so that knowledge is not just trained.

Regarding the pilot, the school leader asserts that neither the time aspect nor physical space should be an issue. She adds that she could imagine a kick-off event for the project, e.g. on School Development Day. The teacher leader agrees that the spatial aspect should not be an issue, but timewise the members of the project had better meet after class. The teacher is concerned because there is hardly any time available for coordinating due to inflexible timetables. He thinks that the leader of the school should create a time frame in the timetables where the teachers can meet regularly. The teacher recommends a responsible person should be compensated for this task and mentions that not all teachers are willing to work on a project in their spare time.

The teacher thinks that the LS4VET team will act as a team of multipliers in the future. The teacher leader sees the main tasks of his role is explaining the design, discussing tasks, providing infrastructure, and supporting by planning and moderating.

If, due to Covid-19, events would need to be held online, the interviewees do not identify any technical problems. The teacher leader argues that observing and assessing students and giving feedback might be difficult.

Basically, the HTL Wr. Neustadt has great experience in distance learning, because all team members have found a good way to use a central platform for the electronic class registers. During shift teaching, the face-to-face lesson is streamed for the distance group. Teachers and students are used to working on the computer. Assignments and worksheets are provided on the Moodle platform. A programming blog with documents and hints supports learning and teaching processes. Theoretical content is taught in short lessons with MS Teams, after which students perform tasks independently. The teacher conducts individual interviews for performance assessment.

2.2 HUNGARY

2.2.1 DEMOGRAPHY/BACKGROUND

Neumann János Technical College is a pure-profile IT school, teaching students aged 14+ to become software developers and network and system administrators (awarding post-secondary non-tertiary vocational qualifications). Individual interviews were conducted with the school principal, a vice principal, a head of department (of a vocational area, programming) and a VET teacher. We also did a focus group interview with 6 teachers, including three VET teachers, a teacher of history and Hungarian, PE and English.

All our interviewees work full time in the school. Most have 10+ years teaching experience, except for the three VET teacher participants of the focus group. The latter are second career teachers, two of whom used to work in IT professions for 30 and 6 years, the third one in a profession unrelated to IT, before she obtained a vocational qualification as system administrator. All other interviewees have a general or VET teacher qualification, and started teaching as their first career, except for the head of department who also worked in an IT job for 8 years. The reason for her career change was having children, the same reason why the English teacher, who left the teaching profession after three years, to work in marketing for 10 years, returned to teaching. Our interviewees typically belong to multiple teacher departments.

2.2.2 TEACHER PROFILES AND WORK CONTEXTS

Close to a hundred teachers work in this VET school, who can be differentiated according to (1) the subject they teach, (2) the qualification and work experience they have, and (3) the form of their employment.

As regards the taught subject, there are **teachers of general subjects** (e.g. history, PE, English) and **teachers of VET subjects.**

Teachers of VET theory and of VET practice are not anymore differentiated, that is, there are no teachers who can only teach theory or practice, though those without a teacher qualification or experience might initially get assigned only to VET practice. In IT, theory and practice are closer to each other than in many other vocations. VET theory and practice is becoming more integrated also due to recent VET reforms aimed at promoting practice-oriented VET. Whereas previously VET theory was taught in a classroom setting to the whole class in a lecture format, this is now being replaced from year 9 by practice sessions that integrate VET theory, with students in smaller groups of 10-12. Currently, there are three types of VET subjects:

- *vocational theoretical subject*: it is taught in an IT room or a classroom equipped with a computer, which is used only by the teacher, who gives a lecture and shows things on the computer, while students take notes, ask questions and discuss;
- '*theory-demanding practice*': this is a subject not linked to a separate theory lesson, but the required theoretical background is first delivered in a lecture format by one teacher to the whole class, who then separate into 3 groups in 3 IT rooms;
- *vocational practice*: it is linked to a vocational theoretical subject, carried out in an IT room, where students sit at computers and do practical assignments, helped by the teachers.

Thus the work contexts of teachers - which define the forms of "lesson" in VET - include:

- **classroom teaching** (general subjects, VET theory): 45 mins class in classical classroom, lecture format, one whole class (about 30 students)
- **workshop practice teaching**: 45-240 (typically 90) mins (depending on the curriculum) practice sessions in IT rooms, one class divided into 3 smaller groups of students (10-12) who have practice at the same time, at the same location (in two adjacent rooms, with doors often left open, or one big IT room with 26 computers for two groups) and with the same exercises (assignments). One teacher coordinates VET practice in each class – if it is a subject that is linked to a theoretical subject, then it is the teacher of theory. One break during a 3-hour practice, or after theory given as a lecture at the beginning before practice, but students may stand up and move around (simulating authentic work practices). Students do not go to in-company training during the school year (*as is typical in other, mostly lower level VET, E.B.*).

Based on their qualification and experience, general subject full-time teachers are fully qualified teachers, and several of the full-time VET teachers also have a VET teacher qualification (typically obtained after starting teaching). VET teachers' vocation-specific qualification is typically an IT higher education degree and rarely only a vocational qualification. In addition to full time teachers, the school employs several **part-time VET teachers for a term/year, either practitioners from the industry with some years of work experience or university students** (former students who obtained a vocational qualification in the school upon graduation but continued studies in university and "come back to teach in the school because they liked being here and they do the teaching well"). These part-time teachers already have, or are currently studying to get, a higher education degree in IT (but typically not a teacher qualification). The recently changed legal regulations in Hungary permit their employment as VET teachers, but the principal has been inviting IT practitioners to teach in the school for a long time, in order to bring in up-to-date content knowledge, resolve the problem of lack of teachers, and to support the employment of their graduates (which is actually also a motivation for companies to cooperate with the school). Nevertheless, job continuity is rather low among VET teachers.

2.2.3 SCHOOL CULTURE AND LEADERSHIP

The most distinctive feature of the school that also defines both its mission and vision is its innovativeness. Partly, innovativeness is inescapable due to the nearly permanent reforms in VET, resulting in changing training structures, outcome requirements and framework curricula every couple of years. New VET subjects are introduced nearly every school year and textbooks are often not

available. This “pressure to innovate”, along with teachers’ self-motivated decision to continuously update teaching content in order to follow the fast development of the IT industry, necessitates the continuous development of new teaching content and materials. Much of this development work is undertaken in collaboration as the task concerns multiple grades and related VET subjects, and also, because it would be too overwhelming for individual teachers. The downside of all this is that there often appears more emphasis on content rather than methodology. As the department head put it:

“As a teacher of a VET subject, I actually am concerned that precisely because of these continuous “dragging”, it is often more important for us what we teach, than the question with what pedagogical methods we want to achieve that. Which is actually a problem because, especially with those in years 9 and 10 [that is, students aged 14 and 15], the methodology might be more important.”

Nevertheless, also in methodology the school appears to be a pioneer, it has for long been applying the method of project work on a voluntary basis, even before it was recently introduced as a compulsory new subject in grade 9. Projects have been initiated both by teachers and students, first in IT subjects, later also linked to science or human area subjects, resulting in multidisciplinary project work.

Although our interviewees see differences in the pedagogical beliefs and practices of the staff, they believe the majority share the same school vision (“in which direction to go”), student-orientedness and an attitude of “wanting to do their best and to improve”. While respecting the differences, “there is a strong intention to define a common ground and platform”, for example, in the evaluation of students. The school climate is characterized by a high level of trust and autonomy, the latter also resulting from the special context of VET in which the “pressure to innovate” and the lack of textbooks allows much freedom for VET teachers to define and develop the teaching content. Many teachers (according to the interviewees VET teacher, the majority) like challenges and want to improve and do better, and colleagues and school leaders encourage and support experimentation and innovativeness. According to the principal, there is only a minority (about 20% according to the principal) who “close the door of their classroom” and are not open to collaboration, but content with simply “delivering the teaching content” and it is therefore “more difficult to make them improve”. Nevertheless, the vice-principal (an English teacher) believes here, as in any organisation according to management theories, it is no more than 10-20% of the staff who are very active and proactive, and 30% can be made active and included in projects if convinced by reasoning.

Our interviewees emphasized that the motivation to innovate and to improve is mostly internal, and school and teacher leaders do not have many tools to encourage teachers (due to the shortage of teachers they cannot even “force” them), but they fully support, appreciate and reward them. The teacher leader utilizes her personal relationships and “negotiations” to encourage, but she feels many of her colleagues have strong internal motivation to innovate and the problem is more with knowledge sharing and that some teachers feel they work more than others and than what they get back from others. The principal has a very strong vision of the school as a leading institution of innovation, and she provides much encouragement and support to teachers to innovate and collaborate. She encourages teachers to contact the school leaders and ask for support if they have any problem or idea, and considers it very important to ensure that teachers have time for both “compulsory” and teacher-initiated development work in the morning, by changing timetables and work assignments. She also regards knowledge-sharing vital, that teachers know about each other's work, which can be realized through regular meetings, internal staff trainings, class observations and informal discussions, and has by now “become the norm” (even in distance education, teachers regularly use the virtual staff room on Discord to communicate and socialize, and even invite the principal for a chat when they see she is online). Another important form of knowledge sharing and collaborative teacher learning is the induction process (see more on this below).

2.2.4 COLLABORATION FORMS AND BARRIERS

Formal teacher teams include subject departments as well as horizontal groups that are "aimed at an area that want to develop or in which teachers have a task" (e.g. talent development, eco, net group aimed at supporting SEN children, or related to school events, e.g. open day). Regarding the latter, the objective is usually defined by the leadership, but implementation is done by the teachers. The programming department includes 20 teachers, half of whom are university students working as part-time teachers. Department meetings are held monthly. Furthermore, there is a school advisory council that includes all department and horizontal group heads, the principal and vice principal, and serves as a platform of leaders to initially discuss plans and problems.

Cooperation and exchange is widespread in the school. Informal discussions are common both offline (in staff room or the lunchroom) and online (virtual staff room on Discord). There are regular professional discussions among teachers teaching the same subject or VET area, or among teachers teaching the same class (e.g. between the homeroom teacher and the other teachers), among VET teachers especially during times of curricular change. It is also common that teachers learn new teaching content or methods (e.g. digital tools) from each other, either by organizing internal workshops (offline or online) or attending the classes of a teacher, who is expert in that area (either at 3-5 occasions or for the full term/year, to learn the content knowledge they'll also have to teach the following year). Teachers who participate in professional development (e.g. a Cisco course) share their learning with their colleagues. However, there is mostly only informal collaboration between VET and general subject teachers, though the recently introduced new subject "project work" means a new "pressure" for all teachers to collaborate (this new subject aims to prepare students for collaborative work but content is relatively loosely defined, and VET teachers need cooperate with general subject teachers to design and plan this subject).

Deeper professional collaboration involves joint planning of curriculum and teaching content, though not of lesson plans. However, designing new VET content does not only focuses on content but also on how that content can be taught to the given age group (pedagogical content knowledge):

"*Teaching materials in English are available on the net but not for the age group that we teach. We had most problems with figuring out how that can be transmitted pedagogically.*"

One general subject teacher also mentioned her collaboration with a homeroom teacher, focusing on developing students' learning skills in homeroom classes (one class per week). As described above, VET practice involves co-teaching as it is organised with the collaboration of three teachers who teach the three groups a class is divided into. Joint research is limited to analysing student performance at year group tests.

It is very common for teachers to visit each other's classes, though only among teachers of the same subject/VET area. On the one hand, teachers do this in order to learn from their colleagues, either content knowledge (very common among VET teachers who learn some specialized IT content this way) or pedagogical content knowledge. This is partly formalized, part of the induction process of new teachers: especially practitioners from the IT industry, who had never taught before, visit their colleagues' classes to learn how to teach. In turn, these IT practitioners' classes are visited by full time VET teachers, who learn new IT content (industry developments) this way. On the other hand, visiting and observing classes serves to provide feedback to teachers. Again, this is formalized and part of the induction of new teachers: there is a four-month probation period when new teachers' classes are visited by the school/teacher leaders, aimed at providing them support. Such visits are followed by formative assessments (discussions), and the probation period is closed by evaluative feedback. Other teachers' work is evaluated at the end of the term and school year, but not of all teachers, only of those who are perceived as more struggling, due to lack of time. It is also common for teachers to attend their colleagues' classes in order to learn from them, to informally provide some feedback on

the class work. Formal evaluation of teachers is now being transformed due to recent VET reforms. The school has also been applying a quality assurance system since 1998 and they regularly collect feedback in many areas, including about teachers' work, from students, parents and colleagues. The principal perceives more weakness with implementing the changes after the feedback and monitoring the implementation process.

The most important barrier to teacher collaboration is teachers' high workload. Hungarian teachers have to teach 25x45-minute classes a week, and teaching is even more demanding and time-consuming now in distance education. Also, due to the comparatively very low teacher salary in Hungary, around half the teachers hold other jobs besides teaching (private tuition, adult training, or IT jobs for VET teachers, such as system administration at companies). Some of the VET teachers have their main job in the industry and only work part-time in the school. Family responsibilities only concern a minority in the programming department. The school leaders, however, pay much attention to allocate appropriate time for teachers who participate in innovations (development work) during regular working hours, by resolving time schedule conflicts through changing the timetables and work assignments. The staff room (both offline and online) and the adjacent IT room provide space for teachers' informal, and the latter also for formal, collaboration.

Apart from these structural barriers, the most important factor is the personal relations between team members, and school leaders pay attention to respect this ("those who will only argue should not be made to work together"). Due to the large number of staff, smaller teacher teams form naturally, based on personal relations. Conflicts may arise due to the unequal work distribution among teachers (often in the teacher teams teaching practice to a class). Otherwise, the most important precondition of teacher collaboration is finding an objective that is meaningful for them:

"if appropriate objective can be given to the group, for which they should work, then this group will work well together for this given objective and will be able to compromise if needed"

2.2.5 RECOMMENDATIONS ABOUT LESSON STUDY PILOT

None of our interviewees have ever participated in a Lesson Study and only three had some knowledge of it. Most of them perceived homogeneous LS teams (e.g. those who teach Java Script to year 10 students, or a team of homeroom teachers in a year group) more viable, as otherwise "they do not speak the same language in this respect". In a thoroughly heterogeneous team they do not see a common topic that would be concrete enough to make a real lesson. Such a topic would be "too abstract" and wouldn't have much practical value, and would make LS "wasted time". Teams made up of teachers from two departments, combining an IT area and a general subject, might also work (actually, some of the previous voluntary projects were based on such collaboration). For homogeneous teams, there are pedagogical content knowledge areas that might adequately motivate teachers to implement LS. Otherwise, more general topics, such as improving students' learning skills, motivation or planning the newly introduced "project work" subject might work better.

Teachers can be encouraged to participate in the LS4VET course and pilot by financial means, but even more important is to address the internal motivation of teachers, most of whom like challenges and participating in new things, but they have to see that LS is meaningful and useful for them. Any logistical problems can then easily be resolved, with support from the school leaders. As the principal put it:

"If motivations are defined well, then our colleagues will find the time."

However, some of our interviewees expressed some conceptual concerns regarding the method of LS, it appears hard for them to see the value of focusing on only one lesson:

"*Why is it good that LS is only about one lesson? … What I can imagine only with difficulty is that we focus on such a minor area."*

"For me it is still a bit mysterious that we sit down together, three or four or us and then we suddenly reinvent the wheel."

They also think that sustainability of LS in the school seems unlikely, they do not think that it could work in the everyday life of the school, only as part of a project. One teacher also referred to the changed function of the school and the teacher, that education is no more about delivering content but methods, and it is effective if students learn procedures that they can apply in other ever-changing contexts.

2.2.6 THE COUNTRY- AND/OR INSTITUTION-SPECIFIC ISSUES RELEVANT TO THE LS4VET COURSE AND MODEL

The school is very advanced in teacher collaboration and innovation, the majority of teachers are open to new ideas and have a strong internal motivation to learn and improve their teaching. School leaders provide full and adequate support for collaboration. Precisely for these reasons, unfortunately we cannot say this school is typical of Hungarian VET schools. Besides its very positive school climate and supporting leadership, its specific VET profile also yields some atypical features, such as the strong collaboration of VET teachers and practice instructors, involvement of IT practitioners, or VET teachers' strong motivation to follow the industry developments, which are faster here than in some other VET fields.

LS model: Much attention must be paid in designing the LS4VET model and course to address the initial concerns of teachers about LS and to make it appear to them as meaningful and useful.

LS pilot: VET teachers and instructors are not differentiated in this school, but this is a special feature of the IT area. They are more differentiated in other Hungarian VET schools and collaboration between them is often weaker, might also be limited by being located at different school sites. During the LS implementation, since the school integrates SNI students, attention must be paid to autistic students, for whom class visits might be disturbing and should be avoided.

2.3 MALTA

The participants in the Malta interviews hold the role of a Chief Operating Officer of Academia, Head of Department and VET Teacher. The institution in question is the Institute of Tourism Studies (ITS).

The Chief Operating Officer of Academia is currently an administrator of the academic staff and the curriculum with the responsibility to oversee all the related structures. He also teaches Organizational Analysis & Research in a doctorate programme run by a private HE institution and holds professorial chairs at two different foreign private HEI. His first degree is a BA in Archeology, University of Malta (UM), a programme of studies that gave him the tools (e.g. critical thinking skills, delivery skills, interpretation and communicating ideas) to arrive when he is today. He then read for an MPhil on documentation and interpretation techniques with the University of Leicester, UK and obtained a PhD in Heritage Management and Interpretation from the same university. Before having this role, he was the Curator of Heritage Malta; worked at the University of Malta as visiting Senior Lecturer, Research Support Officer and Head of the Secretariat in charge of Valletta 2018 Foundation and held the role of Head of Department (HoD) of Tourism Management and Director of Studies at ITS. He is currently the editor of the University Networks for European Capitals of Culture Publications and the Editor-in-Chief of the Futouristic Magazine.He continued studying quality assurance and pedagogy when he read for a Diploma in Higher Education Quality Management. At ITS, he has also taught at Certificate level (i.e. MQF Level 3) and keeps voluntarily taking on teaching opportunities when and as the need arises to

keep contact with students, to check standards and best practices, and also to know what is happening at teaching level.

The Head of Department is an academic and business development manager who has worked at ITS for the past 4 years. Prior to this, he worked as a lecturer with a private company teaching business development on a part-time basis. In his role at ITS he delivers lectures, does curriculum review and supports lecturers in their everyday teaching duties. He is also on the Board of Studies and on the Academic Research and Publications Board. In his role as a head of department, he addresses issues that crop up on a day to day basis. He is also responsible for programmes related to management content in food and beverage.

The VET teacher has 22 years of teaching experience as a qualified teacher – he graduated with a first degree in Communications and a Postgraduate Certificate in Education (PGCE) in Social Studies (leading to a teaching qualification and a teachers' warrant), and has taught in all levels except Kindergarten classes, including post-secondary and university. He has expertise in Digital Media and ICT and specialised in Applied ICT and how this is applied in the tourism industry – in fact this now forms his teaching duties. He has a particular interest in e-learning and technology / ICT intersecting in tourism. He is also interested in Digital Media education and how cultural heritage can be transmitted to the public.

ITS is governed by a Board of Studies (BoS) chaired by the Head of School in his role as Chief Operating Officer. The other members of this board are the HoDs, the academic coordinators, and lecturers' and students' representatives. Since this institution does not fall under the Ministry for Education (MFED), there is a measure of independence and autonomy, granted that it operates within the established academic parameters. ITS has a second important organ: the Programme Quality Validation Board (PQVB). The PQVB is responsible for approving ITS programmes in terms of quality and sustainability, and they are also responsible for engaging external examiners and verifiers. At a lower level, ITS has the HoDs who are known internally as academic managers. Courses at ITS start from MQF Level 2 and go up to MQF Level 7. Students can move vertically in their chosen area of study from one level to the next, but not horizontally from one course to another. ITS has presently circa 700 full time students and this number goes up to more than 1200 with the part-time students. Of these numbers, 90 students have special needs and are referred to as Special Cases, which is quite a substantial percentage. There are six Learning Coaches who are expected to offer support to all these students.

A very important part of the ITS experience is the students' practicum and how this is tied in to their learning programme. These learning programmes also have the academic aspect, but this aspect needs to be manifested in a vocational institution. Students do not need to qualify with a warrant, and their Master's degree is professional with a significant component of which is 'practical'. Practice and experience is given a lot of importance and there is rigour in the academic part of the programme, particularly in the way the students write and carry out research.

ITS has just launched the first issue of its journal, named FUTOURISTIC. This journal embodies the desire at ITS for lecturers to do research into their teaching, to come up with and implement new pedagogical ideas, and to disseminate these ideas.

There are different types of lessons – theory-based and practical-based. In both types of lessons students work both individually and collaboratively. Student learning in theory-based programmes takes place in a normal lecture scenario and its variations (e.g.: online lectures or blended courses). Learning for students, in this case, is mostly on an individual basis.

The majority of the teaching staff holds a Masters, some have a PhD and some are reading for a PhD. Moreover, VET teachers hold a lot of experience in industry and used to work in industry for a number

of years. Timetabling at ITS varies according to the department under which a programme falls. A timetable for a practice-based programme is different from a timetable of a theory-based programme. All practice-based programmes also have a strong component of theory - in fact, each practice module is attached to a corresponding theory module that is given in a typical lecture sit-down arrangement an hour before the corresponding practice session begins. Lecturers have a maximum of 18 hours of lecturing contact time a week. Some would have slightly more and some slightly less. But their employment contract stipulates 40 hours per week, so the hours not dedicated to lecturing are expected to be spent on doing research, attending meetings, etc. Three hours per week are however dedicated for students who can come to talk to lecturers in their office at stipulated times.

Many lecturers at ITS, especially the ones of practiced-based subjects, apart from being full-time at ITS, have either some type of consultancy or work in the industry as part of remaining hands on in their subject. In fact, the majority of ITS lecturers do part-time work and most of them are involved in industry.

There is a certain level of open-mindedness among lecturers at ITS with regards to the introduction of new teaching methods, but this is stronger among lecturers doing theory-based courses. Theory-based lecturers at times even approach the SLT to discuss new ways of teaching that they come across and are very willing to share this newly acquired pedagogical knowledge with other colleagues. On the other hand, in practice-based programmes there is an established international sequence of learning that is very specific. This makes it harder to introduce new practices, unless these sequences of learning are amended at an international level. The VET teacher has a strong grounding in education, but not all his colleagues have this same perspective towards learning and training.

ITS organises in-house professional development programmes. Currently, ITS is working on quality assurance and pedagogy. Moreover, given that they consistently attract many students with special needs, they emphasise a lot in their training how to teach students with different needs. Training for ITS lecturers is mandatory. This training is organised on the basis of a ‘professional growth conversation’ that the head of school, with the assistance of his collaborators, holds at the end of each year with each lecturer at ITS. These courses are mandatory, but the order of doing them is left up to the lecturers to decide.

Nowadays, lectures at ITS tend to have a feeling of belonging to a community and consequently share a common set of values and beliefs. This sense of community, with its emphasis on discussion and an interest in following the progress of individual students, make it possible to make things work for students and consequently to limit the drop-outs rate.

Lecturer collaboration at ITS is also transversal, in the sense that you get groups of lecturers working together on a particular issue that is of a common interest to all of them, irrespective of their subject of specialisation or department. This transversal collaboration is quite common especially in view of specific modules that are built around the idea of promoting such collaboration. Professional discussions among lecturers take place both formally and informally, but mostly formally. These meetings also serve to give feedback to each other and to offer support. The idea of designing curricula, planning lectures and assessment together has long existed at ITS, something that guarantees harmonisation and standardisation which are both extremely important. Many lecturers meet in each other’s offices and sometimes even in the office of the head of school when there are issues that involve changes in programmes, to discuss things that can be improved, the matrix of the learning outcomes framework, assessments and so on.

According to the VET teacher, however, they are a small team so very few of them share expertise. The idea of collaborating is not widespread; lack of collegiality is a cultural phenomenon in Malta and

his colleagues do not feel comfortable sharing their work with others. According to the head of school, there is still no culture of peer observation.

According to the head of department, when ITS recruits new staff from the industry, and these lack pedagogical skills, then they are provided with a 5-year plan to get their teaching qualification. For ITS, it appears that training is important and it is essential to keep their teaching staff, work and knowledge updated. Yet, the staff very rarely involve themselves in projects, seminars, conferences and projects.

The head of school, head of department and VET teacher were not aware of what LS is and entails. LS is something that is completely new to all of them. Asked to identify possible areas that could be addressed through LS at ITS, the head of school suggested that a LS that helps to improve the teaching of subjects that are linked to numbers would benefit students who are keener about the practical components of their training. According to the VET teacher, if LS is implemented at ITS, there won't be any issues on a content level, but pedagogically, there is a lot of divergence and many lecturers do not teach in his same level. He feels that in order for this to happen at ITS, there should be time allocated, and other incentives – like this practice counting as CPD which can then be used for career progression. The head of department remarked that to get lecturers attracted to this, they need to have the time. This will be a learning curve for themselves, something that can make them become stronger in their delivery and identify areas in which they can develop.

Due to COVID, the head of department thinks that if this LS could be done virtually then it could provide them with more confidence to teach virtually. Similarly, the head of school also offered reassurance that ITS is prepared to do this LS experience online even if the covid-19 situation remains unchanged in the foreseeable future.

2.4 NETHERLANDS

2.4.1 DIFFERENCES BETWEEN THE THREE TARGET GROUPS

The interviews were held with a teacher, an instructor, a team leader and school leader of a sub-department of Landstede, Menso Alting. In this department, they teach educational routes in the domains of economy and services. The subjects all – except for the director/school leader - had experiences related to the domains of economy and services. The school leader and the team leader both have teaching experience in and outside VET. They do not all have a teaching license; the instructor is in a trajectory toward teaching certification and the director is not licensed.

Firstly, we will give insight in the teacher teams and their tasks. This context information is important to understand this analysis. There are 14 teachers and 4 teacher teams in this department. The teacher and the instructor both are responsible for various kinds of tasks, across the teaching subjects. The teacher mostly is active in one sub team; the instructor is active in all the sub teams of the team. Next to that, they have different tasks within so-called "focus groups", these groups work on themes broader than teaching. Examples of themes are "examination" and "student satisfaction". The team leader says it depends on the person and "tasks package" what kind of tasks the teachers/instructors carry out. The interviewed teacher is a coach, teaches authentic assignments, teaches general subjects and is responsible for quality assurance and examination. The instructor assists in authentic assignments and various courses/classes. They both are involved in various kinds of "focus teams" where they are responsible for innovation and quality improvements.

The team leader and school leader state that their job is to facilitate, inspire and boost teachers/instructors with innovation and quality improvements. However, the teacher feels that the leaders do not have a good overview of the real important matters that concern the

teachers/instructors. He also says that he doesn't get (regular) feedback. There is little contact when it comes to these innovations and quality improvements.

All target groups state that there are differences between staff about the educational vision. There is an overall vision – carried out by Landstede/Menso Alting, but not all staff members agree with this vision. Also there are differences in how the vision is interpreted/implemented.

Directly related to Lesson Study; The teacher and instructor are open to start a Lesson Study trajectory. However, they think they will not have a lot of time to do so. For example, the Tuesday meetings are always so full, there is no spare time to discuss new/other subjects. The school leader states that he will make time to do the Lesson Study. However, he says the teachers and team leaders should take the initiative. The team leader is not outspoken about this. He states that teachers/instructors are very full of work and need to have “mental space” for a Lesson Study, he does not specifically say how he can help teachers/instructors create this mental space.

2.4.2 THE COUNTRY- AND/OR INSTITUION-SPECIFIC ISSUES

2.4.2.1 Developing our LS4VET model, as an adaptation of the method of Lesson Study to the national VET context

The main issues related to implementing Lesson Study in the Dutch VET-context, and specifically in this department in Landstede are team composition, professionalization culture, scheduling/time and online Lesson Study.

Team composition

Since there is no specific teacher/instructor profile the teams will always be heterogeneous. And the sub teams are very small (3 to 4 per team). So, topics will most likely cross subject matter. Such as formative assessment, student guiding and skills retention. On the other hand, there is also a need for Lesson Study within the subject matters/domains. How to organize this, with such small teams could become a challenge. The team leader even advised against doing a lesson study between teams because this would result in “shallow” and too personal (not team-) learning.

Authentic assignments (where students work on professional oriented tasks) could be a subject for the LS of this department, since teachers from different topics work together here on the same project. It also might be interesting to take the different “focus groups” in mind; since they are composed of teachers of different (sub)teams and still have a shared focus.

Professionalization culture

All subjects state that there are specific moments with specific (sub)teams to innovate and improve their VET-education. However, they also state that this is mostly not related to the “action level” of the teachers/instructors (I.e., teaching/didactics/pedagogy). Also, they are not used to co-teach and to discuss their daily teaching practices with each other. For implementing a Lesson Study, they have to “open their doors” to others. Teachers/instructors have to get used to giving feedback and cooperating at this level with colleagues.

Scheduling/time

The teacher, instructor and team leader all agree that their schedule is very full. The director states that 10% should be reserved for professionalization (this is part of the teacher's contract) and that he and the team leader can and would make time for a Lesson Study trajectory. The problem however is that extra time does not dissolve the time pressure the teachers experience. The teachers/instructors need to be given more “mental space” for an activity such as Lesson Study.

Online Lesson Study

The team leader states that teachers/instructors in VET are not so keen on online learning, they would rather combine online learning with direct action in practice. The teacher also states that at least the first session should be offline and he is easily distracted when having an online training. If there is a combination of online/live learning: The future LS4VET model should account for this issue.

Luckily the students are already very involved with the school about educational quality, they give a lot of instant feedback, so students are willing to cooperate and give input during a lesson study trajectory.

2.4.2.2 Designing the LS4VET training course

The teachers state the training must be interactive; the instructor states the beginning of each session is essential; there should be a clear start and a clear purpose. He also states that he likes to be challenged and the exercises/talks have to "wake him up"/ he likes to get new perspectives etc.

The LS4VET training course is online. Depending on the persons undertaking the course, we should consider how much of the training time should be spent online. (former) Teachers/instructors in VET are not so keen on online learning, they would rather combine online learning with direct action in practice. The team leader advises to minimize online learning and combine this with actual practical assignments.

2.4.2.3 Planning the LS4VET pilot, paying attention also to the sustainability of LS4VET in the school

As noted in the previous sections, the Dutch teachers/instructors feel a lot of pressure, not so much "mental space" for new professionalization and scheduling a Lesson Study will become a challenge. Despite these challenges/issues, they are open to a Lesson Study. The subjects advise to connect an implementation of a new Lesson Study to a current theme. At this moment, formative assessment is a hot topic in the teams of Landstede. In 2022, new assessment dossiers and assessment standards will be implemented, if the Lesson Study is directly connected to such an important topic chances of success will grow.

3. COMPARATIVE ANALYSIS

Our comparative analysis focuses on highlighting differences and similarities in our four partner schools and the four VET systems regarding four main issues.

3.1 TEACHER PROFILES, WORK CONTEXTS AND TYPES OF 'LESSON' IN VET

3.1.1 WORK CONTEXTS/LESSONS

In all four countries, there are lessons organized as traditional, standard lessons in a classical classroom environment, although the duration of each lesson varies from country to country (45-50 minutes etc.). However, there are other educational units that have longer time frames and organized in a lab/workshop environment and build on either individual or collaborative student assignments, supported by the teachers (lab/workshop practice,: project work). Most such practical lessons are twice or even longer than a standard class.

Data from national reports

AT – much project work, individual student assignments and teamwork, 50 mins classes and double unit classes, individual units in labs and workshops, projects in higher year groups (involving cooperation with external partners) – theory lessons using lectures, practice lessons (student work independently, assignments given in Moodle, teachers provide support), project lessons, mentoring system

HU – classroom lesson (general subject or VET subject), "theory demanding practice" (VET subject) and VET practice in IT rooms, new course subject introduced in year 9 "project work"

MT – theory-based and practical-based lessons, in practice-based programs laboratories (e.g. kitchen), requiring student collaboration, in longer sessions (2-6 hours), but each practice modules is linked to a theory module which is given as a lecture an hour before the practice session in theory-based programs classroom/online/blinded lectures, with individual student work

NL – theory-based and practical lessons, coaching, authentic work assignment hours (students work on professional oriented tasks and teachers form different topics work together here on the same project)

3.1.2 EMPLOYMENT

In all countries there are VET teachers who work as part time teachers. In some cases the teachers' main job is not in the VET school but in the industry.

Data from national reports

AT – about ¼ part-time among VET teachers in the IT department

HU – part-time teachers only among VET teachers

MT – 30-40% part-time

NL - 60-70% part-time

3.1.3 QUALIFICATION

The situation is very diverse in terms of typical qualifications. A teacher qualification is not a requirement for employment in all four countries, but those without it have to participate in educational training or get the teacher qualification while already in service. VET teachers of theory or practice may only have vocational-specific higher education degrees or lower level qualifications.

Data from national reports

AT – vocational HE qualifications, no teacher qualification required, only 4 years of professional experience and to attend educational training and studying while employed as teacher (within a certain period of time after starting to work as a teacher)

HU – all full time teachers qualified, most with teacher qualifications, part-time VET teachers only IT degrees or university students

MT – most have Masters degree or PhD by now, newly recruited teachers without pedagogical skills are provided with a 5-year plan to get their teaching qualification

NL – many differences, there are teachers who have a bachelors teacher qualification or teachers and instructors who still need professionalisation (instructors and VET teachers also need different qualifications). The teacher and instructor in the report have been teaching and are not qualified but starting professionalization next year, the school leader is not qualified.

3.1.4 WORK EXPERIENCE

Most VET teachers also have work experience, which is also a requirement in some countries and/or highly appreciated

3.1.5 TEACHER PROFILES

Teacher profiles are differentiated to some extent in every country. In the Hungarian school, there are different qualification requirements for general subject and VET teachers of theory and of practice. Nevertheless, in practice there is not much difference between teachers and instructors in the Hungarian school either, though this may be due to its special training profile (IT).

Data from national reports

AT – technical specialists, technical practitioners and general educators, OR VET teachers and general educators, no formal profiles only subject-specific task descriptions

HU – difference between general subject and VET teachers, but not really between teachers and instructors in the IT sector and this school

NL – school leader says no specific teacher profiles (everyone does everything), but different qualifications are required from general subject teachers (teacher qualification for that subject), VET teachers and instructors (work experience and qualification related to the subject taught), and instructors work under the supervision of a teacher

3.1.6 OTHER COMMITMENTS

Except for the Dutch school, in the other three countries it is very common for VET teachers to hold jobs or undertake professional assignments in the industry. It is conceptualized as greatly beneficial to update their vocational skills.

Data from national reports

job outside teaching common in **HU** (about 50%, also general subject teachers in shadow education, and part-time VET teachers from the industry), **MT** (in the industry or as consultant) and less in **AT** (about 25%), and fully appreciated as ensures keeping up-to-date in the vocation, "keeps them in the loop professionally in the case of consultancy and provides them with professional experiences to hone their skills in case of work in industry"

3.1.7 WORKLOAD

The required number of hours of contact time is different in the four countries as well. In the Netherlands 10% of the work time should be reserved for professionalization (this is part of the teacher's contract).

Data from national reports

HU – 25x45-min classes a week

MT – max 18 hours of lecturing contact time a week, altogether 40 hours per week, 3 hours to be dedicated to student guidance, teacher says workload sometimes goes up to 30 hours a week

NL – typically 16-20 hours per week contact time, other time is for non-contact work such as developing courses and meetings however, 10% should be reserved for professionalization (this is part of the teacher's contract),

otherwise max. 27 contact hours in case the teacher has no other tasks (so up to 30 hours a week including all activities related to teaching)

3.2 SCHOOL CULTURES, CLIMATES AND LEADERSHIP

3.2.1 SCHOOL CULTURES

The picture is very diverse with regards to school cultures. In the Netherlands teams are typically highly isolated, while in Hungary, there seems to be more collaboration between departments and there are many horizontal departments as well. Teamwork is considered very important in the Hungarian and Austrian schools, which may partly result from their specific profile as IT schools, where there is always a pressure to keep up with the continuous fast development of the sector and curricula needs continuous development, carried out in collaboration. In Malta, innovativeness is stronger among lecturers in the theory-based programmes, while practice-based programmes have to follow specific established international sequences of learning.

Data from national reports

NL – team dependent, mostly isolated teams

HU – more impact of the whole school leadership, very innovative, shared vision of continuous development, knowledge-sharing, collaborative learning, in-house PD programmes

AT – keeping up with IT developments a continuous effort, curricula very open and requires coordination, can be changed autonomously, teamwork considered very important, friendly and open climate, supportive, in-house PD programmes

MT – open to new teaching methods, but stronger among lecturers in theory-based programmes (who work in normal classroom set-up), in practice-based programmes there is an established international sequence of learning that is very specific, makes it harder to introduce new practices, in-house PD programmes, sense of community, no culture of peer observation, though encouraged by school leaders, only shadowing period as part of induction, head of school says about 40% would object

3.2.2 VISION

There is a strong vision of innovativeness in the Hungarian school, while the Dutch and Maltese schools pursue a vision of personalization/individualization. In Austria, 'annual focuses' are defined. While in the Hungarian school this vision seems to be shared across the whole school, the school visions do not seem to be universally shared elsewhere or are adapted by the teacher teams.

Data from national reports

AT – 'annual focus' aimed to crosslink departments, but mentioned only by the school leader

HU – vision of innovativeness and continuous improvement, shared by a majority

NL – vision of personalization (individualization?), but not universally shared and the school vision is adapted by teams (assisted by school educators/researchers in VET)

NL – vision of individualization (assigning lecturers to groups that fit them best))

3.2.3 LEADERSHIP

In the Netherlands there is an annual performance review, but iteachers feel there is not enough 'challenge' by the leaders. In Hungary, Austria and Malta there appear to be more stimulation from the leaders'. In Hungary, school leaders put much emphasis on knowledge sharing and feedback for new teachers and struggling teachers, and there is a strong feedback culture collecting data also from the parents and students (quality assurance system). In Austria there is no annual performance review, but strong feedback culture from students using an online software tool, while in Malta there is both formal and informal feedback, and a strong focus on creating a community, based on a common vision.

Data from national reports

NL – not enough challenge by leaders, not much feedback, once a year performance review with class observation, but leaders have no good overview, much feedback from students, director's feedback to team leaders only

HU – leaders encourage, support and appreciate innovations/development and knowledge sharing and transparency, feedback for new teachers and struggling teachers from department heads, much feedback from students and parents (quality assurance system)

AT – motivating and reducing administration considered her task by the teacher leader, shared commitment, no formal feedback, no annual performance review, classroom walk-through rejected by staff committee and evaluation is often considered as checking in teachers, new teachers supported by mentors and a handbook, but strong feedback (from students) culture using a QM software

MT – yearly performance reviews, attention to creating a community based on a common vision, focus on individualization by assigning lecturers to groups that fit them best, feedback is both formal and informal (yearly performance evaluation as a support tool)

3.3 COLLABORATION FORMS AND BARRIERS

3.3.1 TEACHER TEAMS (DIFFERENT LOGICS OF ORGANIZATION)

Teams are formed based on different logic in the four partner schools. In the Netherlands, teams with sub-teams are formed by sector, involving teachers responsible for specific tasks. Teachers collaborate primarily within these teams, in weekly meetings, plus once a year whole school development day. In Hungary, teams are formed both by the taught subject (subject departments) and for specific horizontal tasks (e.g. talent development, events etc.). Here monthly department meetings are typical. In Austria there are big teachers' teams (35-38 teachers), with roles defined based on needs and competences, but no regular meetings, only typically two meetings a year. However, team culture is largely appreciative and supportive.

Data from national reports

AT – mixed team of 35-38 teachers, roles based on needs and competences (e.g. Erasmus Homepage, Moodle etc.), no regular meetings, only during curriculum development, two meetings per year. Team culture is largely appreciative and supportive

HU – by subject or task, monthly subject dept. meetings

MT– teams are formed by departments and have an allotted time-slot for subject meetings. However, they also meet and communicate more informally during their work

NL – 3 teams with sub-teams by sector (responsible for several courses), weekly meetings, plus once a year whole school development day, focus teams, 3 work teams responsible for innovation/development, each team involves teachers responsible for specific tasks (e.g., traineeship, quality, examination ec.), but no focus on teaching

3.3.2 COLLABORATION FORMS

In the Dutch school there is no co-teaching, but collaboration is widespread both within teams (and their sub-teams, e.g. in curricula development, mentoring etc.) and across teams (in focus teams focusing on specific topics such as examination, educational development etc.). In Hungary collaboration is particularly strong among VET teachers because of the near-permanent VET reforms and the fast changes of IT industry developments, which require the continuous development of curricula, teaching content and materials. English teachers also collaborate a lot (e.g., co-planning curricula of the first year of the bilingual classes focusing on English learning) and there is some co-teaching in VET practice and theory demanding practice. In Austria there is a rich collaboration among teachers who teach the same subject. Team culture is appreciated and supported. In Malta department formal and informal discussions are common, also co-teaching is present, there are also whole school meetings, and transversal collaboration linked to common tasks (like organizing events) is common.

Data from national reports

AT – VET teachers teaching the same subject cooperate in developing teaching materials (no textbooks available for specific IT subjects), but no formalized sharing, class divided into 2 groups, informal team meetings and some topic-related conferences at the start of the school year, no co-teaching but team teaching on optional Robotics class, exchange of teaching materials (less from senior teachers), school development day once a year, various development projects, innovation by encouraging collaboration, team culture appreciated and supported, teacher teaching the same subject (e.g. programming) cooperate and do similar lessons, no joint research, occasional joint training courses

HU – much collaboration in VET departments due to permanent VET reforms (new curricula, new subjects) and fast IT developments, teaching materials developed in collaboration and shared, but also among English teachers (designing and implementing English curriculum of bilingual classes), co-teaching in practice and theory demanding practice

MT – transversal collaboration linked to common tasks (e.g. organizing events) is common, informal and formal professional discussions at departmental meetings, also whole school meetings also to give feedback and support, joint planning and curricula development, co-teaching meaning teaching parts of a module

NL – both within teams (sub-teams)and across teams (focus teams), no co-teaching

3.3.3 FEEDBACK

The patterns of feedback are very different again. In the Dutch school there is not much feedback from the leaders, a little between the teachers and a lot from the students. In Hungary and Austria much attention is paid to providing feedback to novice teachers, and in Hungary it is common that VET teachers visit each other's classes. In Austria there is hardly any class observation from colleagues.

Data from national reports

AT – informal support, monitoring only for new teachers, hardly any feedback from supervisors but strong focus on student performance, no class observation from colleagues

HU – much feedback for new teachers (formalized induction) and among VET teachers visiting peers' classes

MT – feedback provided through a 'professional growth conversation' that the head of school, with the assistance of his collaborators, holds at the end of each year

NL – not much from leaders, some between teachers but not common, lot of feedback from students

3.3.4 BARRIERS

Workload is a leading challenge in all countries, partly due to many different types of tasks besides teaching. Different time schedules of teachers is an important barrier of collaboration as well. Short breaks between the classes, large staff, physically separated teacher teams are also barriers. Lack of collegiality, problems with knowledge sharing, and different concepts on collaboration (for some it is more formal while for others more informal).

Data from national reports

AT – in the IT department large staff room with coffee room, AT – cooperation across departments difficult due to different timetables, big school, short breaks, spatial separation, seating at tables of 4

HU – time schedule conflicts resolved by school leaders (changing timetables, work assignments), knowledge sharing explicitly encouraged by leaders,

MT – staff place/canteen where lecturers can meet and discuss, separate offices, different views – some view collaboration as more formal, others as more informal, the teacher sees collaboration as not widespread, lack of collegiality is a cultural phenomenon and lecturers may not always feel comfortable sharing their work

NL – workload (teaching many subjects, lot of different tasks, guidance to students, weekly meetings discussing tasks) - time and priorities, so not much "mental room" to engage in teacher professionalisation, different schedules, not used to "open doors", not much real feedback and too little conversations about lessons, high turnover of staff

3.4 RECOMMENDATIONS ABOUT LS

3.4.1 CONCEPTUAL ISSUES/QUESTIONS

Many uncertainties with LS as a method. Teachers are uncertain if by using this method they could/should focus on skills or rather knowledge. Hungarian teachers think by using LS, they would rather focus on transversal skills in education, not that much on knowledge. Also for teachers in Malta LS seems not to fit the culture of Western countries.

Data from national reports

NL – should we focus on skills or knowledge?

HU – focus on teaching methods instead of knowledge, why focus on one lesson then

MT – cultural aspects (the VET teacher appears skeptical that this approach can be well implemented in Europe and / or the west, because we are "not so disciplined")

3.4.2 TEAM COMPOSITION

Heterogeneity of the possible LS teams is a big concern in each country. In Hungary teachers could imagine two-subject teams which are composed of a VET (IT) and a general subject. Maybe homeroom

teachers could also be members of such a team (focusing on the topic of improving students' learning skills in the once a week 'homeroom lesson'). In Austria teams of 4 IT + 2 general educators' are suggested, but they could also imagine interdisciplinary teams, and a learning coach and a teacher leader as team members. In Malta they could also imagine mixed groups of lecturers and practical courses teachers. However, they think LS is best for new teachers, because senior teachers are not so keen on changing their practices.

Data from national reports

AT – interdisciplinary, diverse team, or in the IT department, or e team of 4-6, including 4 from IT and 2 general educators or a learning coach and a teacher leader

HU – one-subject or at most two-subject teams (IT and a general subject), or homeroom teachers on teaching learning skills

MT – either lecturers from practical courses or from theoretical courses, if from both then in a lecture format, it is not for everyone, best for new teachers, senior ones may not be keen to change their practices

NL – within a team or a sub-team, team leader warns if LS is implemented between-teams/cross teams this might possibly lead to too much individual learning and not team learning, on the other hand, subteams are small and topics will likely cross subject matter, whereas there is a need for LS concerning subject matter as well

3.4.3 TOPIC

The possible topics suggested by the respondents vary a lot, but most of them are very general and mostly didactic or pedagogic in nature (eg. learning skills, assessment, student motivation etc.).

Data from national reports

AT – German or English, assessment, student motivation, students' ability to abstract and analyze processes programming

HU – any related to the one or two subjects, or learning skills, student motivation

MT – teaching of subjects "linked to numbers" (e.g.: financial mathematics) or teaching of languages

NL – formative assessment, how to remember knowledge (*learning skills*?), online lessons, leader suggest topics should relate to the school vision, e.g. how to accompany the LWP lessons, formative evaluation

3.4.4 BARRIERS, LOGISTICS, TEACHERS' MOTIVATION

Regarding the barriers and logistics of LS, the respondents think that securing a time window is very important. More or less it seems doable in the countries. As for incentives, it is crucial that teachers see the added, practical value that can be expected from LS. Recognizing LS as CPD would be a good incentive for the teachers.

Data from national reports

AT – time window is needed (different schedules), common time slot in the afternoon (after 5pm) or on Saturday, responsible person who is compensated, time and space not an issue according to the school leader

HU – time and space can be secured by school leaders, most important is motivation which requires that teachers see the practical value

MT – lot of divergence pedagogically, recognizing LS as CPD would be good incentive, time must be allocated and it is a constant challenge

NL – time, idea of opening the classroom was found scary, it is important to invest in time and .have a leader, to make LS a success it is important to see the added value for their teaching and relate to their own issues, there is a professionalization budget but controlled by the institution, time and space should not be a problem according to the school leader

3.4.5 ROLE OF LEADERS

School leaders can have different roles in running LS in their schools: they can be facilitators of LS activities, they can monitor it, secure its logistics (eg. ensure time), and they can also actively participate in some parts or in the whole LS cycles.

Data from national reports

AT – would like to participate in some way, kick-off event, same role as in learning workshop (explain, discuss, provide, plan, support, moderate)

HU – support, ensuring logistics, participation in monitoring

MT – assistance in logistics

NL school and teacher leader sees a role of facilitator and monitoring, teacher leader might also participate in planning and design, must ensure time for participating teachers

3.4.6 SUSTAINABILITY

The opinions on the sustainability of LS are also different. In Hungary it is not seen as viable due to lack of time and impracticality. In Austria the teacher thinks that when a LS completes the project, they can become multipliers in the school, while in Malta the school leader is in favour of creating a strategy to ensure sustainability.

Data from national reports

AT – LS completed can become multipliers in the school

HU – not seen as viable due to lack of time and impracticality

MT – school leader in favour of creating a strategy to ensure this could work within the institution

NL - If LS links up with subjects that the institution is already working on, LS can become a part of the 'routine'/'professionalisation'

3.4.7 ONLINE LS

In the Netherlands it seems to be the best to minimize the online part of LS; even hybrid versions would be better. In the other countries it seems that LS run online seems feasible, mostly due to their specific profile (IT) or prior experience with distance learning. These three schools also had positive experiences during the covid lockdown.

Data from national reports

AT – no problems in the IT department, all are equipped and used to working online, though monitoring and feedback might be difficult

HU – possible, good experience with distance education for VET in this sector (IT), also teacher collaboration is working (online staff room, class "visits"); good experiences, IT is ideal for online education, even platform for informal teacher cooperation

MT – distance education programmes even before for foreign students, online teaching could actually be an attractive/current LS topic

NL – minimize online part, possibly hybrid, especially the first meeting should be 'real-life'

3.4.8 DESIGNING THE LS4VET COURSE

There should be a clear start and a clear purpose, exercises/talks to challenge "wake up" teachers.

Data from national reports

NL should be interactive, beginning of each session is essential; there should be a clear start and a clear purpose, exercises/talks to challenge teachers not so keen on online learning, would rather combine it with direct action in practice, actual practical assignments

4. DISCUSSION AND SUMMARY

Based on the analysis of the collected data, we can answer our research questions as follows.

Q1: How innovative and open to renewal are our partner schools? What is the teachers' and school leaders' attitude towards innovation and professional development like?

While in general all of our partner schools are open to innovation and renewal (which is, indeed, a reason why they joined in our project), there are some differences between the schools regarding the extent of this openness and in their practices, but there are just as many (if not more) differences within the schools themselves, between individual teachers and teacher teams. Nevertheless, it seems that in any school there is only a minority of the teachers who are the active agents in any school innovations. However, at least a similar proportion of the teachers are rather resistant to any kind of innovations and collaboration aimed at professional development.

Q2: In what forms do teachers currently collaborate and learn from each other in our partner schools and what is their attitude towards collaboration and learning from each other?

There are several types of formal and informal collaboration among teachers of the same department/team as well as among those in different departments/teams, though the former is more typical. Teacher departments/teams are the primary places of teacher collaboration, but the logic of the organisation of these teams varies between the four partner countries and is probably VET system-dependent. In Hungary, there are subject departments as well as horizontal departments that provide a platform for the collaboration of teachers of different subjects in specific topics. In the Netherlands teacher teams are formed by sector and involve general subject as well as VET teachers (e.g. Economics or Healthcare). Teachers in a team collaborate within sub-teams, but there is collaboration also across these teams through so-called focus teams. In the Hungarian and Austrian schools collaboration is particularly widespread among VET teachers teaching the same or related subjects and include co-designing curricula, teaching content and materials and co-planning. The same can be said to Malta where VET teachers at ITS meet to co-design curricula and distribute the content that they will teach (only when more than one teacher is involved in a particular course). In Hungary, there is also extensive mutual learning between IT practitioners employed as part-time teachers and full-time VET teachers (where non-certified teachers learn teaching methods from certified teachers, who learn new content knowledge in return).

Some teaching formats support teachers' collaboration among different departments as well, such as – and above all – project work.

In some of the partner schools there are different activities in which the teachers collaborate with each other. For example, organization of school events – not necessarily academically or VET oriented school activities –, or homeroom teachers' activities, or for example in the Austrian partner school the yearly professional development program.

However, many forms of teachers' deeper professional collaboration are missing or not typical, or not formalized in the schools. Eg. co-teaching, or observing each other's classes and providing feedback, shared lesson planning and similar activities are not typical or not formalized. Some of our partner schools appear as more familiar with and open to deeper collaboration and providing and receiving feedback.

Q3: What different types of 'lesson' (regular class, workshop practice, projects, simulations etc.) and what research themes are relevant to lesson study (LS) in our partner VET schools in these four different VET systems?

In the VET schools of the four partner countries of LS4VET project, forms of teaching include the traditional classroom teaching (e.g. lecture) as well as non-traditional forms. Traditional class teaching is the dominant form of general and VET theory subjects/modules, with a typical duration of 45-50 minutes. Other forms of organizing teaching activities include labs, workshops, projects, simulation classes, projects etc., which involve either individual or collaborative student work, and where the VET teachers' role is more like assistance and guidance. These latter are organized in different formats with different lengths (varying from 45 minutes to 6 hours). Many of these non-traditional teaching formats require teachers' collaboration of more or less extent. However, in some of our partner schools, teaching of general subjects can also involve extensive co-planning, though usually not co-teaching (e.g. co-planning of English teaching in the first year of bilingual classes in the Hungarian school).

Q4: To whom is participating in a lesson study in VET relevant and what are their incentives to participate in a lesson study? What types of LS team composition are possible and viable in these four VET systems in general, and in our partner schools in particular?
Overall, it seems that teachers can be effectively motivated to take part in innovative activities such as LS, if they see the added value of those activities, and they feel they can use what they learn in their practice. It is very important to clearly define the goals and objects of LS as activity. Also, teachers could be more easily encouraged to take part in LS activities if it were recognized and accredited as CPD.

Based on different teacher profiles and organisation of education, we see the following options of organizing LS teams:

- teachers of the same department/team (teaching the same/related subjects)
    - teachers of same-format lessons (e.g. lectures, labs)
    - teachers of different lesson formats (e.g. lecturer of a theoretical module and teachers supervising related lab-work)
- teachers of non-subject related activities (eg, homeroom teachers)
- mixed teams eg.
    - VET+general subject teachers
    - teachers of VET and/or general subjects and teachers of non-subject related activities (eg. class teachers)
    - novice and senior teachers
    - department leaders and other teachers; school leaders and other teachers.

Q5: What would the main challenges of conducting LS in VET in general and in our partner schools be like and how could these be resolved? How can the logistics of the piloting (time, space, and funding) be ensured in our partner schools?

Though different time schedules and high workload pose a barrier to teacher collaboration in each of our partner schools, securing time and space for the LS4VET pilot does not seem to be a problem - as far as these are subject to the school leaders' support, which is ensured in our project. Funding is available in the project, but otherwise, there is a professionalization budget available only in the Netherlands.

Q6: What role(s) can and do school and teacher leaders want to play in the implementation of LS and how can their involvement be encouraged?

School leaders can have different roles in running LS in their schools: they can be facilitators of LS activities, they can monitor it, secure its logistics (eg. ensure time), and they can also actively participate in some parts or in the whole LS cycles.

Overall, we can summarize the main points to be taken into account when designing the LS4VET model, course and pilot as follows.

A/ LS4VET model

- There are diverse formats of teaching in all four countries: traditional classroom teaching, lab/workshop individual and collaborative student work, projects etc. (see table in appendix)
- in VET, staff is typically more diverse in terms of teacher qualifications and work experience, taught subjects and teaching formats than those in general (academic) upper secondary education
- depending on the training profile of the VET school (providing VET in one, two or more vocations/occupational groups), staff may be more or less homogeneous
- school cultures of upper secondary institutions are more fragmented compared to elementary and lower secondary schools; the primary place of teacher collaboration here is the teacher team, which are formed based on different logics in the different VET systems (e.g. subject departments and horizontal departments in Hungary, teacher teams with subteams formed by sector and focus teams in the Netherlands)
- school cultures, visions and collaboration practices might also vary depending on the VET sector:
    - the IT sector demands continuous development of teaching content and materials, teamwork is considered important, online education works well;
    - in the hotel, tourism and catering industry, for example, practice-based programmes in the Maltese school, there is an established international sequence of learning that is very specific and therefore less flexible to introduce new teaching methods.teachers' deeper cross-department collaboration (i.e., such that relates to teaching practices) is not very typical in our partner schools at the moment
- therefore the model should pay attention to the fact that a homogeneous or a two-department-model would be the most realistic composition in VET, in which
    - a general subject department collaborates with a VET department, or
    - VET teachers instructing classroom teaching and practice collaborate within the same department collaborate, or

- teachers of non-subject-specific educational activities (eg. class teachers) collaborate with subject teachers

➢ also the model must pay attention to the fact that in VET schools "lesson" as the unit of teaching has many different variations

➢ since, depending on the school size and VET sector and curricula, some of the subjects taught in VET schools may be taught only by 1-2 teachers in a school, homogeneous between-schools LS seems to be also a possibility; in such cases, heterogeneous LS teams made up of teachers collaborating with, for example, a Learning Support Educator, a Head of Department or maybe a member of the school leadership team is also possible;

➢ in the interviews, there emerged different ideas for team composition and topic, common: two-subject team, student motivation, learning skills

➢ the external experts' characteristics and role is a question for LS in VET as well (who should be an expert of very different types of knowledge at the same time)

B/ LS4VET course

While we want to prepare a standardized course for all 4 countries and later for the followers, we have to pay attention to the fact that:

➢ teacher profiles are differentiated in all countries by different qualification requirements and by what they teach, which might imply different types of lesson

➢ current forms of collaboration for VET teachers working together on designing and implementing courses appears to them as very similar to LS, only not that systematic, structured and detailed; so it is very important to show the differences between LS and other diverse forms of teacher collaboration in VET schools

C/ LS4VET pilot

➢ our partner schools have different organizational structures, different logics of current formal teams that define the current forms and objectives of collaboration, to what teachers are used to

➢ our partner schools have different cultures and climates: some are more used to "open doors" and giving and receiving feedback, others are not

➢ allocating time and space will not be a problem as far as these are subject to school leaders' support, which is ensured in our project;

➢ but, considering also teachers' high workload and general lack of time, teachers can be encouraged, motivated to participate only if they see the added value of LS for their teaching, its "practical value"

➢ online LS seems viable in HU, AT (IT sectors) and MT (remote programmes) but not preferred in NL

5. APPENDIX

5.1 GLOSSARY

class teacher: a teacher who is responsible not only for teaching but also organizing a groups of students also in administrative aspects (in Hungary, curricula involve one hour per week as 'class teacher hour', which can be dedicated also to developing students' learning skills)

coach: a possible 'role' of a teacher in which he/she guides both a group and the individual students in this group in their learning career and all matters involved.

general subject: academic subject (e.g. history, in case the VET school curriculum involves general education, as in Hungary) or a general subject related to the VET curriculum (e.g. history in tourism programmes, English for IT)

general subject teacher (GST): a teacher who teaches a general subject

learning support educator: an educator whose role is to support students with specific learning needs

subject department: a teacher team formed of teachers teaching the same or closely related subjects (e.g. English subject department, programming subject department in Hungary)

teacher: a variety of roles, across different school subjects and levels, in relation to individuals who have the responsibility to teach a class of students

VET practice: part of VET curriculum that focuses on developing students' occupation-specific skills through individual and/or group assignments in labs, workshops, etc., supported by one or by a group of VET teachers (national terms include 'practical lesson' in HU, NL and AT, 'authentic work assignment hours' in NL, teamwork in AT, 'practical-based lessons in laboratories' in MT)

VET subject: a subject of the VET curriculum providing training in occupation-specific competences

VET teacher (VETT): a teacher who teaches a VET subject, might include teachers and instructors with divergent qualification requirements

teachers in vocational education and training (TiVET): all teachers working in VET institutions (GSTteachers and VETT teachers)

5.2 TABLES

TABLE 1 FORMS OF 'LESSON' AS THE UNIT OF EDUCATION IN THE FOUR PARTNER SCHOOLS

	general subjects	VET theory	VET practice (in school)	any other
AT	lessons taught like in general upper secondary education; teachers have freedom to select methods aligned with curricula and learner needs; platforms (e.g. Moodle, LMS, MS Teams) are used	theory lessons using mainly lectures	practice lessons (student work independently, assignments given in Moodle, teachers provide support) **project lessons** (in higher year groups)	mentoring system (in apprenticeship)
HU	lesson in a traditional classroom setting, teaching methods/learner work forms chosen by the teacher - but typically lecture format (depending on the subject as well)	lesson in a traditional classroom setting, teaching methods/learner work forms chosen by the teacher OR in 'theory-demanding practice' lessons: the required theoretical background is first delivered in a lecture format by one teacher to the whole class before the practice session begins	*vocational practice*: linked to a vocational theoretical subject, this is a type of lesson provided in an IT room, where students sit at computers and do individual practical assignments, helped by the teachers '*theory-demanding practice*' (the default type in the recently introduced curricula): not linked to a separate VET theory lesson, but the required theoretical background is first delivered in a lecture format by one teacher to the whole class, who then separate into 3 groups in 3 IT rooms	**project work** (*projektmunka*): newly introduced 'subject' in year 9, aims to prepare students for collaborative work but content is relatively loosely defined, and VET teachers need cooperate with general subject teachers to design and plan this subject one 'class teacher's class' (*osztályfőnöki óra*) a week - classroom setting, can be dedicated to developing students' learning skills SEN teacher sessions (*gyógypedagógiai foglalkozás*) - individual skills development, number of sessions dependent on student
MT	taught up to EQF level 2; from EQF level 3 onward general subjects are	theory-based lessons	practical-based lessons	

	embedded with the other tourism related modules	in practice-based programs: each practice modules is linked to a theory module which is given as a lecture an hour before the practice session in theory-based programs: classroom/online/blinded lectures	in practice-based programs: laboratories (e.g. kitchen), requiring student collaboration, in longer sessions (2-6 hours) in theory-based programs: individual student work	
NL		theory-based lessons	practical lessons **authentic work assignment hours**: students work on professional oriented tasks and teachers form different topics work together here on the same project	coaching: career coaching?

TABLE 2 PROFILES OF TEACHERS IN VET IN THE FOUR PARTNER SCHOOLS/VET SYSTEMS

		summary term	**teacher of general subjects**	**teacher of vocational theory**	**teacher of vocational practice**	**other**
AT	**national term/English translation**	Lehrkraft/Lehrer *in/teacher	Lehrer der Allgemeinbildung/general subject teacher Fachlehrkraft/subject teacher	Lehrer der Fachtheorie/specialist theory teacher Berufsschullehrkraft/ vocational education teacher	Lehrer der Fachpraxis/teacher of professional practice Werkstättenlehrkraft/ Praxislehrkraft/Fachlehrkraft workshop/practice teacher/ subject teacher	

	required min. qualification	*n/a*	higher education entrance examination and at least four years professional experience Exception: In colleges for higher vocational education (like HTL) teachers of general subjects do not need professional experience, but they need a degree in teacher education for their subjects - EQR Level 7 for colleges for higher vocational education for general subjects, for vocations schools BEd (EQR Level 6)			
HU	**national term/English translation**	*oktató*/instructor	*közismereti tanár ('a közismereti oktatásban oktatott tantárgy oktatója')*/general subject teacher	*szakmai* tanár („szakmai oktatásban tanított tárgy oktatója")/vocational teacher	*gyakorlati oktató, szakoktató („gyakorlati ismereteket oktató személy")*/vocational practice teacher	*osztályfőnök/class teacher* *gyógypedagógus*/SEN teacher
	required min. qualification	*n/a*	subject-relevant higher education degree with a teacher qualification: - of master level (MEd) in technical school (ISCED 3-4) - of at least bachelor level (BEd) in vocational school (ISCED 3)	higher education degree with a subject-relevant: - vocational teacher qualification (MEd) or higher education qualification (BSc or MSc) in technical school - higher education qualification (BSc or MSc) or non-tertiary vocational qualification in vocational school	secondary school leaving exam certificate (ISCED 3A) and a field-relevant non-tertiary vocational qualification	Class teacher: as defined for the 'normal' subjects taught SEN teacher: SEN higher education degree and qualification
MT	**national term/English translation**	*għalliema tas-suġġetti vokazzjonal*/VET teacher	n/a	*għalliema tas-suġġetti vokazzjonali/VET teacher*		*learning support educator*

	required min. qualification	first degree in Education at Level 6 but typically: B.Ed (Hons.); First Degree + MTL; First Degree + PGCE or for teachers of VET practice, also industry recognised qualification				
NL	**national term/English translation**	no general term	*docent algemeen vormend onderwijs (docent AVO* = teacher of Dutch, citizenships and math)/general subject teacher	*docent*/teacher	*docent, vakdocent* *instructeur*/practice teacher or instructor	*loopbaanbegeleider*/career counsellor or coach
	national term/English translation	*n/a*	since 2017/18: - higher education teacher degree - bachelor or master, or - relevant experience in the subject combined with a PDG-certificate = 1.5-2 yrs course in pedagogy and didactics in a higher education teacher education institution, with minimum entrance level of ISCED 6)		field/subject-relevant experience + 'instructor' certificate (vocational qualification of ISCED 3) or a certificate which contains pedagogic-didactic skills (e.g. associate degree ISCED 5 for educational supporter)	same as teachers'

TABLE 3 DATA ABOUT PARTNER SCHOOLS – AUSTRIA

Level of education *(please underline all, if multiple types of programmes are offered)*	lower secondary - upper secondary – post secondary non tertiary - tertiary

Age group *(typical age of students beginning and completing the programmes, e.g. 14-19)*	14-19
Share of general education and VET in curricula (% on average)	General Education ~ 40% VET ~ 60%
Share of theory and practice in VET (% on average)	Theory ~ 60% Practice ~ 40%
Share of in-company and school-based practice (% on average)	8 weeks in-company practice is a must, so 100%
Qualifications (vocational) currently offered *(e.g. 'electrician', 'software developer', 'hotel assistant' etc.)*	Software Developer
Total number of students	400 in the department, 1400 in the whole school
Total number of instructors *(= anyone who teaches students)*	41 teachers in the department, 140 in the whole school

Number of instructors by taught subjects *(please list all subjects and indicate the number of instructors who teach these subjects)*	in the IT department Religion: 5 German: 4 English: 3 Geographie and History: 4 Sports: 2 Maths: 5 Natural sciences: 5 Technical informatics: 5 Software Engineering: 9 Database systems: 5 Networking and distributed systems: 6 Business studies: 5 Projekt development: 9 Social competences: 6
Please list all formal instructor communities operating within your school, such as subject departments (e.g. of math teachers, vocational teachers, methodological development etc.). If	General Education: 25 VET: 20

possible, please also indicate **the number of instructors belonging** to each.				
Can one instructor **belong to one such community only**?	No			
Information about teachers				
Profile *Please indicate by underlining which of the following 'types' of instructors work in your school. Then below please provide the data asked for each of the relevant profiles.*	**general subject teacher** *(e.g. maths, languages, science)*	**VET teacher of vocational theory** *(of VET theory)*	**VET teacher of vocational practice** *(of school-based VET practice, e.g. in a school workshop)*	**VET teacher** *(that is, teachers of VET theory and trainers of VET practice are NOT differentiated)*
Number	25	20	20	20
Is a **higher education degree** required for this instructor profile?	YES	YES	YES	YES
Is a **pedagogical qualification** required for this instructor profile?	YES	YES	YES	YES
Are these instructors typically **second career teachers** with vocational experience in their original vocation/trade?	NO	YES	YES	YES

Is there any type of **mandatory professional development** for these instructors (e.g., in-service training, in-company placements)?	NO	NO	NO	NO
Could participation in the LS4VET training course or the pilot be officially recognized as part of their professional development (e.g. by credits)?	NO	NO	NO	NO

TABLE 4 DATA ABOUT PARTNER SCHOOLS – HUNGARY

Level of education *(please underline all, if multiple types of programmes are offered)*	lower secondary - upper secondary – post secondary non tertiary - tertiary
Age group *(typical age of students beginning and completing the programmes, e.g. 14-19)*	14-18, 18+
Share of general education and VET in curricula (% on average)	General education: 65% VET: 35%
Share of theory and practice in VET (% on average)	Theory: 40% Practice: 60%

Share of in-company and school-based practice (% on average)	In-company: 25% School-based: 75%
Qualifications (vocational) currently offered *(e.g. 'electrician', 'software developer', 'hotel assistant' etc.)*	Software developer System administrator
Total number of students	734
Total number of instructors *(= anyone who teaches students)*	94
Number of instructors by taught subjects *(please list all subjects and indicate the number of instructors who teach these subjects)*	https://docs.google.com/spreadsheets/d/1lPtLHtaFsugaWdXpZhFPTc0QhkqPtbLeXwh25y8tF0Y
Please list all formal instructor communities operating within your school, such as subject departments (e.g. of math teachers, vocational teachers, methodological development etc.). If possible, please also indicate **the number of instructors belonging** to each.	English department: 11 Humanities: 9 Science department: 19 Programming department: 28 Networking department: 12 IT department: 11 PE department: 5 Department of form teachers: 24

	Ecological department: 12 Department of instructors dealing with students with special needs: 5 Talent department:12			
Can one instructor **belong to one such community only**?	YES			
Information about teachers				
Profile *Please indicate by underlining which of the following 'types' of instructors work in your school. Then below please provide the data asked for each of the relevant profiles.*	**general subject teacher** *(e.g. maths, languages, science)*	**VET teacher of vocational theory** *(of VET theory)*	**VET teacher of vocational practice** *(of school-based VET practice, e.g. in a school workshop)*	**VET teacher** *(that is, teachers of VET theory and trainers of VET practice are NOT differentiated)* *CISCO academy instructor and examiner*
Number	34	12	23	4
Is a **higher education degree** required for this instructor profile?	yes	yes	no	yes
Is a **pedagogical qualification** required for this instructor profile?	yes	yes	no	No
Are these instructors typically **second career teachers** with vocational experience in their original vocation/trade?		no	partly	No

Is there any type of **mandatory professional development** for these instructors (e.g., in-service training, in-company placements)?	Yes Mandatory credit acquisition (60 hours / 4 years)	Yes Mandatory credit acquisition (60 hours / 4 years)	Yes Mandatory credit acquisition (60 hours / 4 years)	Yes Mandatory in-service training every 3 years
Could participation in the LS4VET training course or the pilot be officially recognized as part of their professional development (e.g. by credits)?	hopefully	hopefully	hopefully	no

TABLE 5 DATA ABOUT PARTNER SCHOOLS – MALTA

Level of education *(please underline all, if multiple types of programmes are offered)*	lower secondary - upper secondary – post secondary non tertiary - tertiary
Age group *(typical age of students beginning and completing the programmes, e.g. 14-19)*	16 and over
Share of general education and VET in curricula (% on average)	Yes this is a approximately at 70:30, VET to general
Share of theory and practice in VET (% on average)	Depending on the nature of the programme, however in catering modules one notes an approximate 80:20, practical to theory, and around 60:40 for other programmes

Shareof in-company and school-based practice (% on average)	Combines practicals in-house, local industry and international experience, varying in accordance to the level of education. The credits vary from at least 10 ECTS at foundation level, and 60 ECTS at Diploma level and 90 ECTS at local and industrial at Degree level
Qualifications (vocational) currently offered *(e.g. 'electrician', 'software developer', 'hotel assistant' etc.)*	Various Hospitality, catering, tourism and travel related roles such as, chef, waiter, travel agent, tour guide, housekeepers, receptionists, events, diving instructors, and senior management
Total number of students	A combined total of full time and part time reaching over 1,000 students
Total number of instructors *(= anyone who teaches students)*	66 cominded part time and full time lecturing staff
Number of instructors by taught subjects *(please list all subjects and indicate the number of instructors who teach these subjects)*	Food and Beverage Service – 10 Food Preparation and Production – 17 Housekeeping - 1 Information Technology – 2 Languages – 8 Management - 27
Please list all formal instructor communities operating within your school, such as subject departments (e.g. of math teachers, vocational teachers, methodological development etc.). If possible, please also indicate **the number of instructors belonging** to each.	As above

Can one instructor **belong to one such community only**?	Yes, depending on the area of specialization in vocational subjects. Management programmes may have a bit more flexibility, depending on the area of expertise			
Information about teachers				
Profile *Please indicate by underlining which of the following 'types' of instructors work in your school. Then below please provide the data asked for each of the relevant profiles.*	**general subject teacher** *(e.g. maths, languages, science)*	**VET teacher of vocational theory** *(of VET theory)*	**VET teacher of vocational practice** *(of school-based VET practice, e.g. in a school workshop)*	**VET teacher** *(that is, teachers of VET theory and trainers of VET practice are NOT differentiated)*
Number				
Is a **higher education degree** required for this instructor profile?	Yes			
Is a **pedagogical qualification** required for this instructor profile?	Yes			
Are these instructors typically **second career teachers** with vocational experience in their original vocation/trade?	Yes			
Is there any type of **mandatory professional development** for these instructors (e.g., in-service training, in-company placements)?	Yes			

Could participation in the LS4VET training course or the pilot be officially recognized as part of their professional development (e.g. by credits)?	Yes

TABLE 6: DATA ABOUT PARTNER SCHOOLS – NETHERLANDS

Level of education *(please underline all, if multiple types of programmes are offered)*	lower secondary - upper secondary – post secondary non tertiary - tertiary
Age group *(typical age of students beginning and completing the programmes, e.g. 14-19)*	12-16 (secondary general education) 16-20 (secondary vocational education) 20 (adult education)
Share of general education and VET in curricula (% on average)	15%
Share of theory and practice in VET (% on average)	The school-based option with full-time education: theory 60%; practice 40% Work-based pathway, offering a combination of work and study: theory 20%; practice 80%
Share of in-company and school-based practice (% on average)	In-company: 20% School-based: 80%
Qualifications (vocational) currently offered *(e.g. 'electrician', 'software developer', 'hotel assistant' etc.)*	Landstede offers a lot of different qualifications in the field of: Office & Management, Trade & Commerce, Tourism & Hospitality, Environment & Animal Care, Construction & Architecture, ICT & Technology, Technology & Innovation, Health Care & Welfare,

	Education & Upbringing, Beauty & Fashion, Security & Legal Services, Sports, Transport & Logistics Design & Entertainment
Total number of students	VET: 13.386
Total number of instructors *(= anyone who teaches students)*	1000
Number of instructors by taught subjects *(please list all subjects and indicate the number of instructors who teach these subjects)*	Unknown.
Please list all formal instructor communities operating within your school, such as subject departments (e.g. of math teachers, vocational teachers, methodological development etc.). If possible, please also indicate **the number of instructors belonging** to each.	Office & Management, Trade & Commerce, Tourism & Hospitality, Environment & Animal Care, Construction & Architecture, ICT & Technology, Technology & Innovation, Health Care & Welfare, Education & Upbringing, Beauty & Fashion, Security & Legal Services, Sports, Transport & Logistics Design & Entertainment 55 teaching teams
Can one instructor **belong to one such community only**?	yes

Information about instructors				
Profile *Please indicate by <u>underlining</u> which of the following 'types' of instructors work in your school. Then below please provide*	**general subject teacher** *(e.g. maths, languages, science)*	**vocational teacher** *(of VET theory)*	**vocational trainer** *(of school-based VET practice, e.g. in a school workshop)*	**vocational instructor** *(that is, teachers of VET theory and trainers of VET practice are NOT differentiated)*

the data asked for each of the relevant profiles.				
Number	Unknown	Unknown	Unknown	Unknown
Is a **higher education degree** required for this instructor profile?	Yes	Yes	Yes	yes
Is a **pedagogical qualification** required for this instructor profile?	Yes	Yes	Yes	yes
Are these instructors typically **second career teachers** with vocational experience in their original vocation/trade?	No	Yes	Yes	yes
Is there any type of **mandatory professional development** for these instructors (e.g., in-service training, in-company placements)?	No	Only teachers nursing	Only teachers nursing	Only teachers nursing
Could participation in the LS4VET training course or the pilot be officially recognized as part of their professional development (e.g. by credits)?	Yes. Part of their portfolio	Part of their portfolio	Part of their portfolio	Part of their portfolio