



LOGIPRO

Logistics Processes in
Practice Enterprises

LOGIPRO Integrating Logistics Processes in Practice Enterprises

Project Result 4 Practice Enterprise Piloting Experience



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DISCLAIMER

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1. Introduction

The global aim of the LOGIPRO project is to develop a work based learning programme that prepares European VET students for an advanced logistics education in higher education or for a job within a logistics company.

Logistics companies tend to find few suitable candidates because the specialised knowledge can only be acquired in a logistics company or through thorough practical training as part of an educational programme. The skills required by the sector were, until now, not taught in a practical way within European VET education. In addition, logistics regulations are very comprehensive, complex and constantly evolving. Companies encounter difficulties finding the right candidate because they continuously ask for highly skilled profiles. If they do decide to recruit semi- and unskilled workers, they have to train them internally on the job, which means a large investment in resources and time.

That's why we developed a future-proof model of the Logistics Practice Enterprise adapting the standard Practice Enterprise (PE) model from a company run by students in commercial, financial and administrative training to a company specialised in logistics services. A Practice Enterprise (PE) is a student-run company in an educational setting that operates like a real business and simulates a real enterprise's business procedures, products and services. Under the guidance of a trainer and business mentors, students in PEs engage in business activities, both nationally and internationally, with other companies within the global PE network. Today, more than 40 countries and 7000 PEs globally are part of PEN Worldwide, the worldwide network (<https://www.penworldwide.org>). Using the PE concept leads to higher job satisfaction for trainers, greater motivation for trainees and an increasing popularity of programmes in VET schools and HEIs.

For the Logistics Practice Enterprise model, we inventoried the key competencies and skills required by logistics companies and determined how they can be trained and integrated in the PE Concept. Within the Logistics Practice Enterprise, employees/students learn and practise the technical and transversal skills in a safe international environment where they can gain a wide range of practical experience. This reduces the mismatch between the skills students are taught and the skills needed by the logistics sector. The Logistics PE offers very business-realistic training that fits seamlessly with the trainee's future internship and/ or job in a logistics company. Because of this innovative method, the trainer is able to steer them very well in terms of further study choice (specialisation) and ultimate job target (employability).

The logistics PE offers real-world work experience for trainees to put into their CV. They communicate with native speakers but are also confronted with differences in company cultures and international regulations. They have international opportunities to engage with other PEs to create a realistic transnational logistics experience. They have the opportunity to complete the logistics process, linked to orders, from A to Z, an opportunity they often do not get during Work Based Learning (WBL) in a real company due to the risks involved for the company.

2. Piloting

We have set-up Logistics Practice Enterprises in VET schools in Belgium and Spain that are involved as project partners and that offer logistics training programmes. During these pilots students performed the logistics tasks linked to the commercial transactions (purchases and sales) within the global PE network, paying attention to the technical and transversal skills required by the labour market.

The national central offices for PEs and PEN Worldwide assisted the schools in organising and implementing the Practice Enterprise logistics training piloting. The school trainers organised two piloting phases where they involved students and specific environments hosting the Practice Enterprise have been developed within school premises throughout the project.

3. Questionnaires: objectives and data collection

We have created a questionnaire for students to be completed at the end of the pilot experience to assess their opinions. A similar questionnaire has been presented to school staff in order to analyse and assess the outcomes of the pilot experience. The questionnaires were published online to facilitate the survey conduction and data analysis. Each consortium partner collected surveys by all VET learners and teachers who took part in the piloting in order to ensure a larger representative sample and diversity of self-report data.

These questionnaires allow us to identify the necessary modifications and supports for the implementation of the Logistics Practice Enterprise on a larger scale. They provide us with data representing actual user experiences and inform us on how they might proceed with scaling up the implementation in other schools. Overall, the objectives of the questionnaire for students and teachers after the piloting experiences are centred on ensuring the quality, identifying areas for improvement, and validating the project's feasibility, effectiveness and suitability for the intended purpose before the implementation in other institutions.

The results are collected and arranged in this testing report.

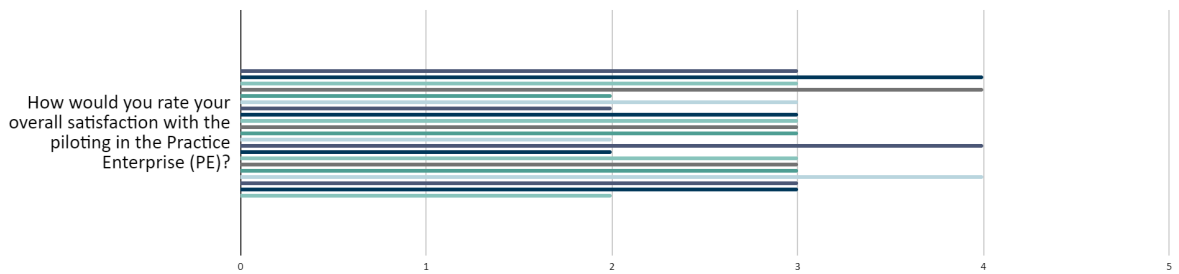
4. Data analysis and key findings - students

4.1 General Satisfaction

4.1.1 Overall satisfaction

In the questionnaire for students we asked 2 questions with a linear scale concerning the satisfaction:

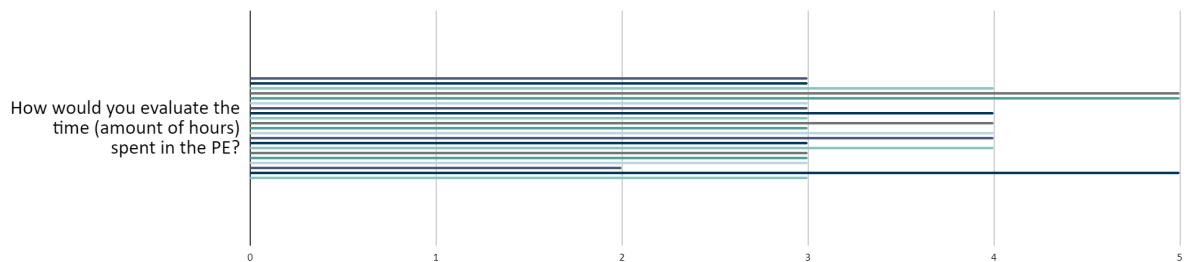
- Question 1: How would you rate your overall satisfaction with the piloting in the PE?
Answers: 1 (bad) and 5 (good)



Score 1	Score 2	Score 3	Score 4	Score 5
0%	24%	57%	19%	0%

- Question 2: How would you evaluate the time (amount of hours) spent in the PE?
Answers: 1 (too short) and 5 (too long)

Score 1	Score 2	Score 3	Score 4	Score 5
0%	5%	52%	29%	14%



The aspects of the PE that were found most satisfying by the students included:

- Practical application of knowledge: gaining practical experience and getting a good insight in logistics and financial processes.
- Transport and Warehousing: The practical application of logistics knowledge, planning and arranging transports, arranging and optimising the warehouse, and working with real-world software (other or the same than the one used during their in-company traineeship).
- Negotiations and Communication: Management of negotiations with different companies, coordination with internal and external parties, learning to cooperate and communicate with colleagues in the same or other departments and learning how to write and manage emails on a professional level.
- Autonomy and Responsibility: Learning to plan, being responsible for drivers, and working together with different types of fellow students.
- Personal Development: Learning to deal with different types of colleagues, working with other internal departments, and improving their communication and cooperation skills.

The students' satisfaction with the PE experience is crucial as it is linked to the practical application of knowledge, personal development, and the acquisition of practical skills in a real-world setting. These aspects contribute to a fulfilling and valuable learning experience for the students.

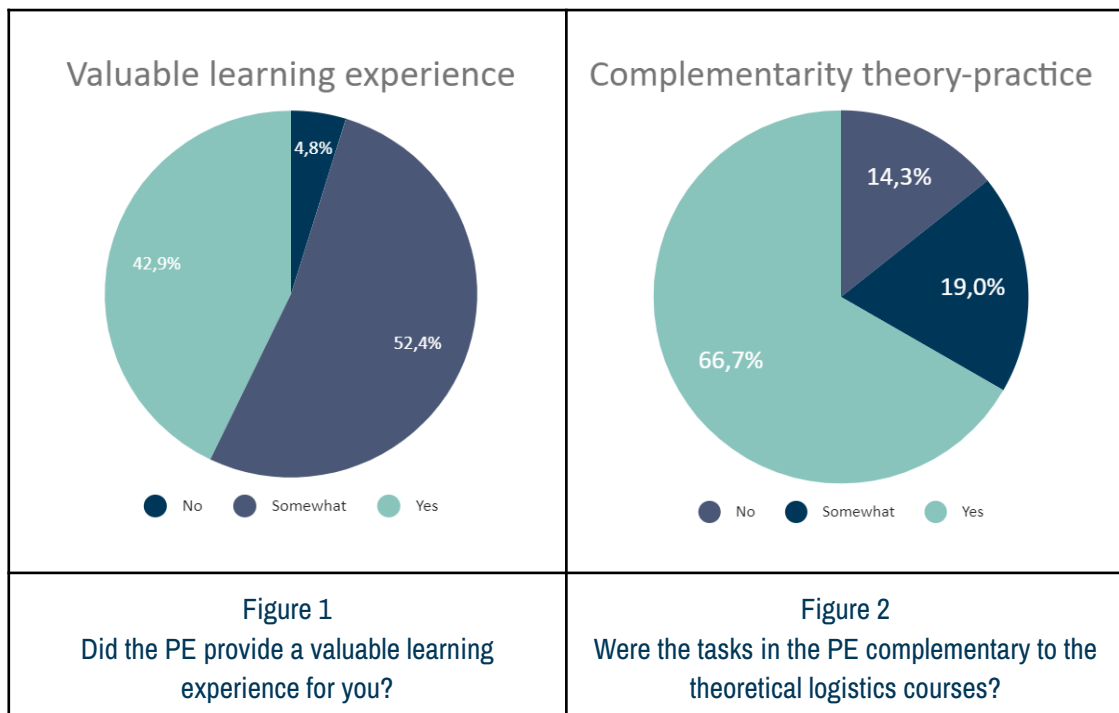
The aspects of the PE that were found least satisfying by the students are:

- **Economy and Administration:** Dealing with economy-related tasks and the process of creating the PE involved more administrative tasks than logistics, which some individuals found less engaging.
- **Software:** The use of TMS-software was considered challenging and not easy. Some students expressed the need for more help and an introductory course for the program.
- **Soft Skills Development:** Some individuals felt there was a lack of real responsibility and autonomy, as well as little input from others, which affected the team dynamic.
- **Organizing Group Responsibility:** The responsibility of the group had to be organised, which could be challenging in order to have a proper division of tasks.
- **Communication and Team Cooperation:** Initial communication challenges with other departments and suboptimal team cooperation were also mentioned as areas of dissatisfaction.

These points reflect the varied challenges and areas of improvement identified during the process of setting up the enterprise during the PE piloting experience.

4.1.2 Learning experience

The majority of students indicated that the tasks in the PE were complementary to the theoretical logistics courses (figure 2) and that the PE provides a (partly) valuable learning experience (figure 1).



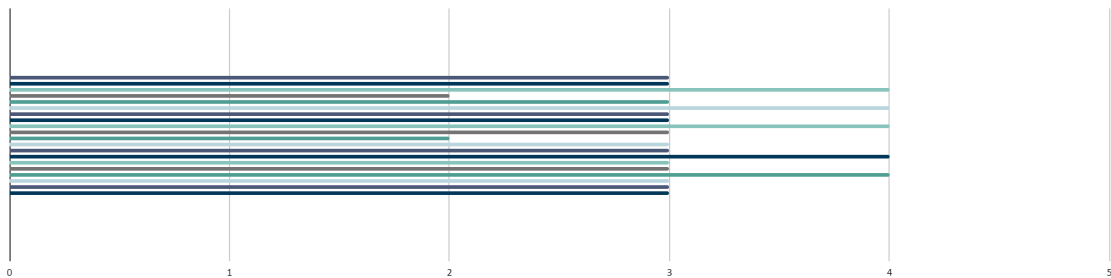
4.2 Effectiveness

4.2.1 Learning outcomes

In the questionnaire for students we asked 2 questions concerning learning outcomes:

- Question 1: Did the PE experience contribute to your learning process and understanding of the logistics processes?

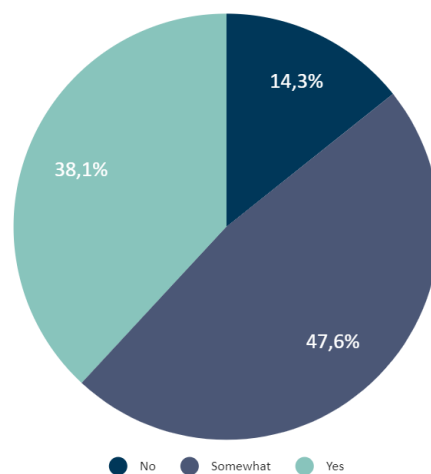
Answers: 1 (No) and 4 (Yes)



Score 1	Score 2	Score 3	Score 4	Score 5
0%	9,5%	62%	28,5%	0%

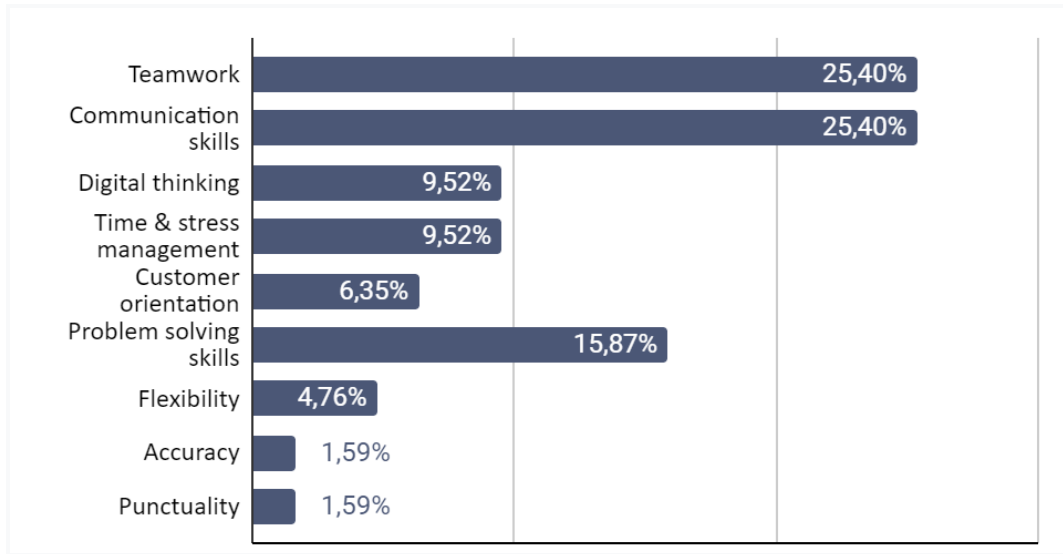
- Question 2: Are your tasks in the PE relevant for the job you want to pursue after your studies?

Answers: Yes - Somewhat - No



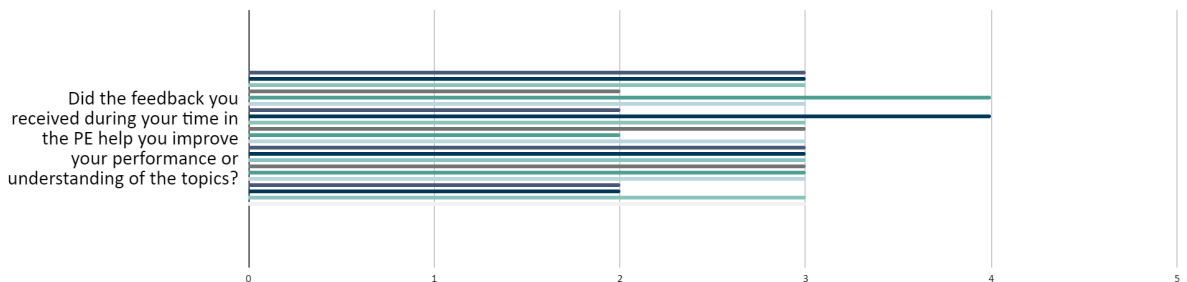
4.2.2 Soft skills

According to the students, the 3 soft skills that they improved the most in the PE are: teamwork, communications skills and problem solving skills.



4.3 Feedback

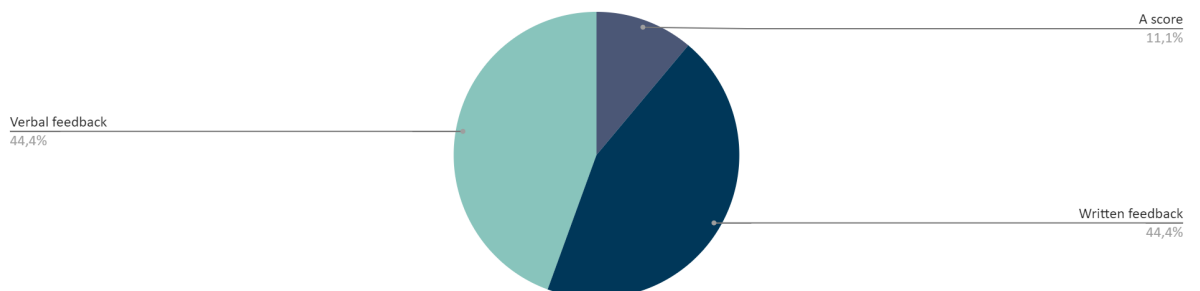
A majority of the surveyed students stated that the feedback they received during the PE helped them improve their performance and understanding:



Score 1	Score 2	Score 3	Score 4	Score 5
0%	24%	66,5%	9,5%	0%

There is no clear preference among students toward verbal or written feedback. They clearly do find comprehensive feedback more relevant than a score.

What type of feedback for your performance in the logistics PE do you prefer?



4.4 Improvement

Based on the provided information by the students, here is a summary of the areas of improvement:

- Improve order management skills and learn software for better job incorporation.
- Focus even more on the practical aspects of the job.
- Dedicate more time to transport and logistics, and less time to administrative issues.
- Communication: Improve communication with other departments or customers.

5. Data analysis and key findings - school staff

5.1 Goals and Objectives

5.1.1 Objectives versus educational goals

We examined how the pilot project's goals and objectives relate to the overall educational goals of the schools concerning their logistics programme.

In general, the pilot project's goals align with the broader educational goals of the school's logistics program, focusing on practical application, skill development, industry relevance, and enhancing the curriculum to better prepare students for real-world logistics scenarios. The objectives were related to learning activities to achieve the general objectives of the curriculum through learning outcomes. The project aimed to motivate pupils to choose a curriculum that could lead to a career in logistics and international trade.

The use of real-world TMS-software during the piloting in the Practice Enterprise was considered to be the perfect tool to achieve a significant number of curriculum goals. The LOGIPRO piloting educated students not only with theoretical knowledge on logistics but also to prepare them for their future jobs in the logistics field. This included working on their soft skills and exposing them to as many practical real-life cases as possible. Some objectives can only be achieved by creating a PE, such as document flow, teamwork, communication, and flexibility. The teachers stated that It is important for students to practise soft and hard skills in a safe environment.

5.1.2 Outcomes

The implementation of a logistics Practice Enterprise aimed to achieve several outcomes, including:

- Hands-on Experience related to the storage and transport of goods: Providing students with practical experience in logistics scenarios. Students are able to complete a full process from a request to invoicing and use real-world software.
- Industry-Relevant Training: Preparing students for the logistics industry by simulating realistic business environments. Theoretical knowledge is combined with practical application by integrating the PE in the curriculum.

- **Specific Knowledge Acquisition:** Teaching students about the practical, geographical, and financial specifications of a transport order, as well as the workings of a real logistics company and its different departments.
- **Soft Skills Development:** Enhancing students' problem-solving, decision-making, teamwork, stress tolerance, sense of responsibility, and critical thinking skills within the context of logistics.

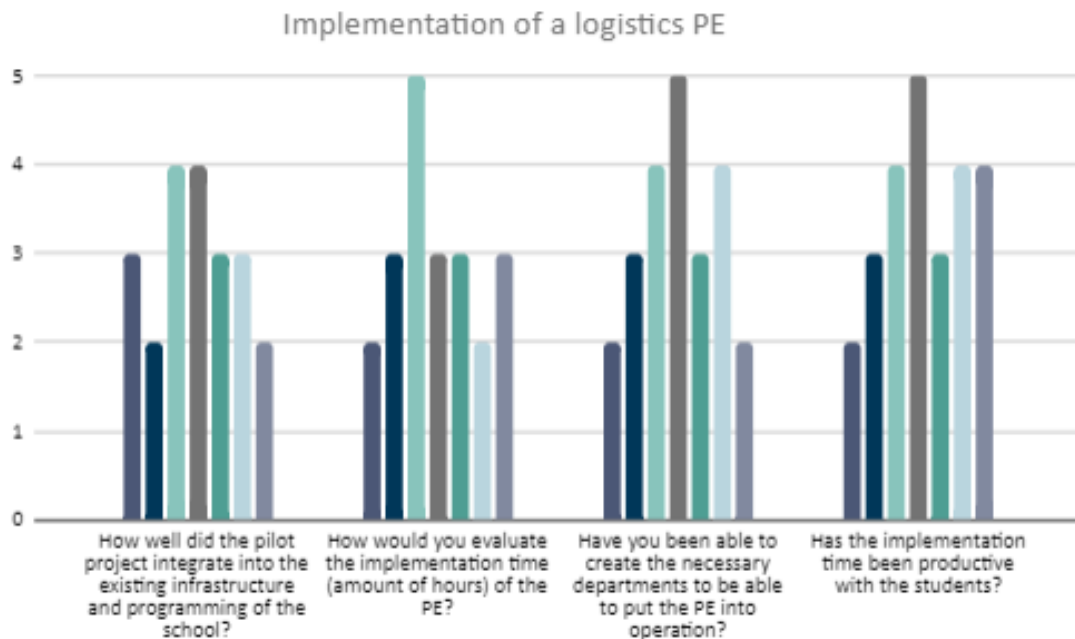
The implementation of a logistics Practice Enterprise is essential for providing students with practical experience, enhancing their skills, and preparing them for the logistics industry. It also aims to integrate theoretical knowledge with practical application, develop students' professional and soft skills, and impart specific knowledge relevant to the field of logistics.

Some teachers indicated that ideally they would have liked more time for piloting activities. One of the surveyed trainers would have preferred to be able to experiment with different software packages.

5.2 Implementation of a logistics PE

5.2.1 Infrastructure and programming

In the questionnaire for school staff we asked 4 questions with a linear scale from 1 to 5 (1 being not well/ no or too short and 5 being very well/ yes or too long).



The implementation of the logistics Practice Enterprise faced the following challenges in Belgium:

- issues with the setup of the TMS and lack of time for testing the software before piloting with students;
- the need for a more business-proof space at the school;
- a lack of flexibility in the curriculum (more time for piloting activities would have been ideal);
- a small group of students.

5.2.2 Trainer needs

To successfully implement a logistics PE, several training, resources, and supports are necessary for teachers and staff:

- Hands-on Training: Offering practical, hands-on PE training for teachers and staff in small groups to apply their knowledge and skills in a real business environment.
- A General guideline: Establishing a clear timeline and providing suggestions for implementing the logistics PE program, including milestones, deadlines, and key events.
- Specialised Training: Training sessions focused on logistics management, including inventory control, supply chain processes, transportation logistics, and relevant software used in the industry, as well as the tools used by the Central Offices for PEs.
- Technical support: Providing support during the implementation period of specialised software (WMS/TMS) to help teachers and staff overcome challenges and ensure a smooth transition to the new program.
- Access to Resources: Providing access to industry-specific resources to help teachers and staff better understand the logistics field.
- Professional Development: Opportunities for continuous learning and professional development through workshops and seminars.
- Collaboration with Industry Experts: Encouraging collaboration among teachers, staff, and industry experts to share best practices, strategies, and insights.
- Teachers Collaboration: Fostering collaboration among teachers and staff to share best practices, strategies, and experiences in PE.
- Administrative Support: Support from the school administration for preparing necessary budgets, space, and time for logistics PE activities.

By addressing these factors, schools can create a comprehensive and effective logistics PE program that prepares teachers and staff to successfully manage and implement logistics processes in their Practice Enterprises and curricula.

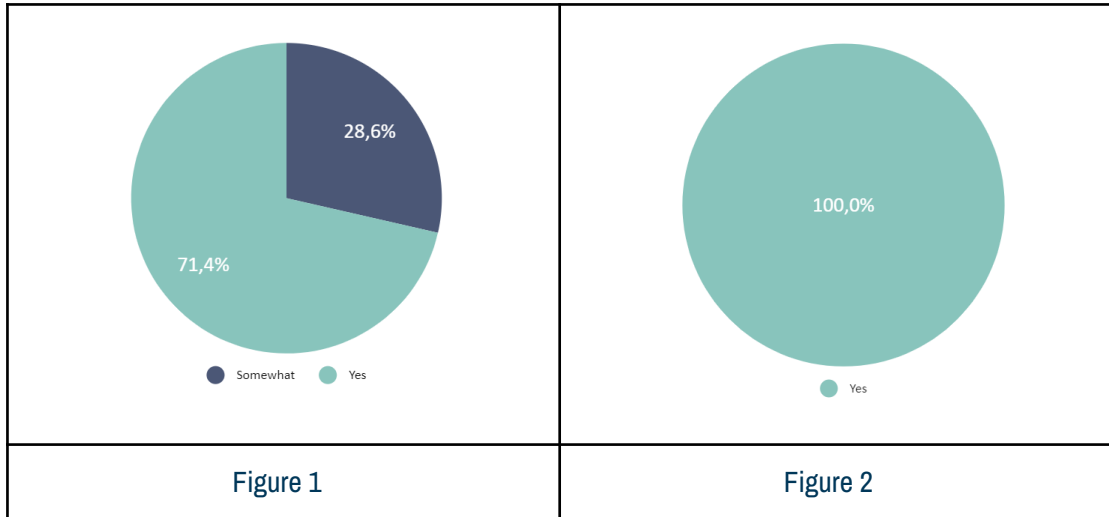
5.2.3 Success and effectiveness

The schools will measure the success of the implementation of a logistics PE by evaluating the soft and hard skills of the students and checking if the practice in the PE was sufficient to be trained for real-life situations, such as an internship in the logistics sector. They will also check with the students how they have experienced the PE and if they found it productive to work in the logistics PE. The school will also check if the curriculum goals are obtained. One of the surveyed schools will also check if the number of students enrolled in the next logistics courses has increased due to the fact that a PE has been integrated in the program.

In Flanders (Belgium), the curriculum goals are yet to be defined for the final year of the 3rd grade, but if traineeship is a compulsory part of the curriculum, the KPI will be the evaluation of their traineeship in a transport and logistics enterprise, working with TMS-software.

5.3 Learning methodology and impact

The majority of the school staff indicated that the tasks in the PE were complementary to the theoretical logistics courses (figure 1) and that the PE provides a valuable learning experience for the students (figure 2).



The implementation of a Practice Enterprise has had a positive impact on student learning and achievement. Some of the key benefits include:

- **Enhanced Practical Skills:** Students gained hands-on experience in logistics operations, improving their practical skills in areas such as supply chain management, inventory control, and transportation logistics.
- **Application of Theoretical Knowledge:** Students were able to apply their theoretical knowledge in a practical context, making the learning experience more meaningful and relevant.
- **Increased Engagement:** The interactive nature of the PE likely boosted student engagement by providing a realistic and dynamic learning environment.
- **Improvement of Soft Skills and Professional Development:** Students developed professional skills like teamwork, decision-making, prioritising, communication, and problem-solving through their involvement in the PE program.
- **Improved Academic Performance:** Students have demonstrated improved academic performance, as they have created a team and taken the project forward as if they were a real company. Students were more motivated to learn in the PE program, as it allowed them to train their soft skills in a real business environment while remaining in a safe space (on campus, with students and teachers they already know).

Overall, the implementation of the logistics PE program has had a positive impact on student learning and achievement, as it provided them with a practical and engaging learning environment that allowed them to develop their skills and knowledge in a real-world context.

5.4 Improvement

5.4.1 Methodology

The aspects of the PE methodology that were found most satisfying by the school staff include:

- Skill Development: The methodology was effective in helping students develop practical skills, and professional competencies directly applicable to the logistics industry.
- Business realism: A secure environment that places students in a virtual business world, which is very close to business reality.
- Integration with Curriculum: Observing how the PE methodology seamlessly integrates with the curriculum.
- Engagement: The simulation-based learning and hands-on gradual growth of understanding were found to be engaging for students.
- Impact on Students: The positive impact on students' confidence and skills.
- Use of relevant tools: The use of existing TMS/ WMS.
- Exchange of Experiences between teachers and PEs.

The satisfaction with the PE methodology was derived from its practical, realistic, and engaging nature, as well as its positive impact on student development and its seamless integration with the curriculum. The use of TMS/WMS and the exchange of real-world experiences were also highlighted as valuable aspects of the methodology.

We also asked the teachers to identify what aspects of the PE methodology were found least satisfying. The answers provided do not always directly address the PE methodology. However, based on their information, some common challenges and concerns can be identified:

- Initial PE Setup Challenges: The initial setup phase of the PE, including training staff and adapting to new methodologies, requires significant time and effort.
- Time Constraints: Balancing the demands of the PE within the existing curriculum.
- Resource Constraints: Problems with the set-up of specialised software, technology, or resources needed to fully simulate.
- Assessment Complexity: Evaluating students' performance within the PE framework could be complex.
- New teachers' role: The challenge of giving up control as a teacher and dealing with the unpredictability of the Practice Enterprise day to day activities.
- Maintenance and Sustainability: Sustaining the PE methodology over time might pose challenges.
- Shortage of Material Resources and Teachers.

These challenges and concerns highlight the importance of proper training, support, and resource allocation when implementing the PE methodology in educational settings.

5.4.2 Lessons learned

Lessons learned from the piloting activities that can be applied to future implementations include:

- ensuring adequate resources are allocated from the outset;
- offering comprehensive and ongoing training for teachers to effectively facilitate the PE and align it with curriculum goals;
- developing a step by step learning guide;
- actively seeking and implementing feedback from students, instructors, and industry experts to continuously refine and improve the PE's structure and content;
- ensuring seamless integration with the existing curriculum, aligning the PE activities with learning objectives for a more cohesive educational experience;
- developing innovative assessment methods tailored to measure practical skills;
- spending more hours with the students in the Practice Enterprise.

Other suggestions include conducting an introductory analysis of the real environment, visiting companies, training in the software environment and doing departmental rotation.

5.4.3 Dissemination

According to the surveyed teachers, in order to include more schools or classrooms, we should present the program to schools that already have logistics training and invite them to visit a school with a logistics PE. Furthermore, a marketing campaign as well as promotion in real companies and public institutions, can help in scaling up the project.