

## Capacity-Building through Novigado school pilot

# Evaluation report



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## Novigado project consortium



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# 1 Introduction

The overall objective of the Novigado project was to guide teachers and stakeholders in the transition from a conventional, teacher-centred method to a student-centred method mobilising active learning, flexible learning spaces and the relevant use of information and communication technologies.

The Novigado pilot phase consisted of a Capacity Building Programme (CBP) and the implementation of learning scenarios in at least six pilot schools (primary and secondary) from each of the four partner countries: France, Poland, Portugal and Turkey. The implementation phase lasted around 12 weeks depending on the country's school calendar.

Evidence-based information about how innovative learning environments and new teaching practices influence education is essential within reform processes. The first questions often asked about new learning spaces and teaching practices are: 'What is their impact on learning?', 'Will the students be better learners and attain higher academic achievements?' Although it is not possible to run a full-scale impact study within this Erasmus+ KA2 project, an evaluation dimension in its pilot phase seemed important to understand the contribution of the Novigado proposal. Thus, the evaluation of the pilot phase was carried out during and after implementation of the learning activities. By collecting the teachers' and students' opinions on the pilot phase, the evaluation phase aims:

1. to identify the conditions, enablers and obstacles to the transition to an active learning model and the use of flexible learning spaces in schools.
2. to identify the best practices (school, teaching practices, student engagement) and recommendations on the implementation of active learning scenarios.
3. to provide indications on the scalability of the model and the proposed tools.

The evaluation of the pilot phase was coordinated by Réseau Canopé (France). Its team designed and planned the evaluation protocol, implemented data collection in the four countries with the help of national teams, and conducted data analysis. The present document reports the implementation of the Novigado pilot phase in four countries using many of the Novigado project outcomes such as CBP, Scenario Tool, Active Learning Reference Framework and the Guidelines in Learning Space Innovations.

## 2 Methodology

The Novigado pilot phase was implemented in four countries with different cultural, geographical and language backgrounds as well as educational contexts. The methodological choice for the evaluation was to conduct a Multiple Case Study, where a case study is understood as *'an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident'*.<sup>1</sup>

The evaluation protocol was designed to gather qualitative and quantitative data from each partner following specific requirements for data collection: a) getting feedback from as many participants as possible, b) avoiding as much as possible translation from one language to another, and c) collecting data during a set period for each tool. Four different instruments were used to collect the opinions, uses and practices of the teachers and students who participated during the 12 weeks of the Novigado pilot phase, from September to December 2021.

In chronological order, the first tool administered to teachers and students was a test that was intended to be answered twice, before (pre-test) and after (post-test) the pilot phase. It consisted of three multiple and single-choice questions, and three Likert scale questions with a series of statements (see Annexe 1 for teachers and Annexe 2 for students). The pre-and post-test objective was to identify the differences in teacher and students' conceptions of active learning and the use of flexible learning spaces and digital tools, before and after any of the learning scenarios were implemented in pilot schools. To analyse the answers, the levels of agreement with the proposed statements in the test and their frequency were converted into numbers to calculate average<sup>2</sup> and median<sup>3</sup> scores for every question as well as standard deviation.<sup>4</sup> For every set of data a standard deviation was also calculated to see if the set has homogeneous results.

The second tool was an online teacher's journal. Its main objective was to facilitate teachers' feedback collection right after implementing a learning scenario.

The third tool was a peer observation guide which aimed to facilitate the observation of a peer teacher implementing an active learning scenario. The guide was delivered in a template form for note-taking and further discussion among teachers.

At the end of the pilot phase, an interview guide served as a frame for group interviews that were conducted by national teams with teachers in the four countries. The interview

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<sup>1</sup> R. K. Yin, *Case study research: design and methods* (4th edition). Los Angeles: Sage Publications, 2009.

<sup>2</sup> A number expressing the central value in a set of data, which is calculated by dividing the sum of the values in the set by their number.

<sup>3</sup> The median is the middle number in a list of numbers sorted in ascending or descending order, and can be more descriptive of that data set than the average. The median is sometimes used as opposed to the average (mean) when there are outliers in the sequence that might skew the average of the values.

<sup>4</sup> The standard deviation is a measure of the amount of variation or dispersion of a set of values. A low standard deviation indicates that the values tend to be close to the average (mean) (also called the expected value) of the set, while a high standard deviation indicates that the values are spread out over a wider range.

guide consisted of a list of open questions about changes in teaching methods, students' attitudes, flexible learning spaces and the implementation of active learning scenarios. Qualitative data from the interviews will be the core of the results presented in this report.

The quantitative data from the test and the teacher's journal were collected in the four national languages through an online survey without the need for translation. By contrast, qualitative data from peer observations and group interviews were translated into English for the analysis. All data collected followed the General Data Protection Regulation and were anonymised.

## 2.1 Limitations of the evaluation

As with every study some limitations were observed. As regards the data collection phase, it is well known that the highest quality of data is usually obtained by controlling the data collection parameters using for example single data collection periods and the same trained team to gather information. Although the evaluation tools were identical and a lot of effort was put in by each partner, such collection parameters are not strictly attainable in an international Erasmus+ project. It is important to consider that each data set was collected by a partner organisation; therefore some differences may be observed. For the same reason and because of the differences between contexts, data in this evaluation are not comparable, only contrastable.

To get data as unbiased as possible from the studied population, it is usually recommended to avoid people from the organisation conducting a project to perform the evaluation. The Novigado project is a small project that could not afford to have separate teams for these tasks. We do not doubt the sincerity of teachers and students when answering the Novigado questionnaires or interviews. However, we should consider that, usually, the evaluation process makes people declare a more positive point of view than they have in reality. We must also bear in mind the position and role of the partner organisations in the educational ecosystem in its country. While some teachers can express a critical point of view on the Novigado pilot phase or their doubts about active learning methods, it is understandable that others only speak out about positive aspects of the project.

The understanding of the test among the younger population participating in the Novigado project also showed its limitations. Two French teachers reported that some students aged 11 to 12 had comprehension problems in some test statements. Students might have then completed the test with the help of their teacher. Since no precise data are available, we must consider that the results for this particular group of students in this part of the test might have biases.

Other aspects must also be considered when interpreting the results of the activities implemented in schools. The presumably new learning scenarios that Novigado proposed to students and teachers may have induced a bias in participants' reporting motivation due to their novelty and not necessarily because of their active characteristics. Moreover, students' and teachers' awareness of taking part in a pilot phase of a bigger project might also have induced some bias in the evaluation.

Above all else, while the Novigado project started in 2019 with a clear roadmap of development, follow-up and evaluation, in March 2020 the world-wide pandemic forced

schools to close abruptly and have teachers implement distance learning. Each country lived in different stages of the sanitary rules, lockdown periods and ministerial teaching recommendations. The pandemic context was marked by students' and teachers' absences and social distancing in schools, among other things. In this context, flexible learning spaces could not profit from wide flexibility. One teacher perfectly describes the general teacher spirit in the context:

*TPL10: 'The lesson went well although we've had quite a few difficulties with remote lessons, with reporting [sick] students to the Disease Prevention Office – it was quite a messy time. So I hope when times get a bit quieter, we will have some time to sit down and think about how we could use those methods better.'*

*Polish teacher of 14-to-19-year-old students*

In view of all the above-mentioned limitations, some biases are to be assumed within the interpretation of the results.

## 3 Results

Following the original plan, the Novigado pilot phase was supposed to be held from January to July 2021. But, due to the COVID-19 pandemic, many schools in partner countries were closed during spring 2021 and teachers were obliged to teach in a fully or semi-online mode. Thus, the pilot phase was shortened and its start was postponed. It was divided into two periods: Period A from September to the end of October 2021 and Period B from November to 10th December 2021. Each school had to collaboratively develop at least one learning scenario for each period and deliver the same scenario in at least two classes, with at least one peer observation. Teachers were also asked to complete their learning scenarios using the Novigado Scenario Tool. Besides all the scenario planning ahead, activities with students went sometimes otherwise in terms of duration. Depending on the subject, scenarios could last from one hour to several weeks. Finally only Turkish teachers managed to implement two scenarios, one in each period of the pilot programme.

The pilot phase finally started in June 2021 with an online kick-off meeting in the four countries. Its main objective was to get to know the teachers and schools involved in the project and inform teachers about Novigado and their participation starting in September 2021, the beginning of the school year. The face-to-face workshop brought together at least two pilot teachers from at least six schools per country in September and some weeks later for the Portugal case study. The training baseline consisted of nine modules which each partner translated and adapted to the local context (see <https://fcl.eun.org/novigado-results>). During this time, teachers were also introduced to the evaluation and feedback tools.

Altogether, the Novigado project involved 77 teachers and reached about 1 200 students in classes in 25 schools in four countries: France, Poland, Portugal and Turkey. 62% of the teachers involved in the project teach 11-to-14-year-old students and 38% teach 15-to-18-year-olds.<sup>5</sup>

The participant schools in the Novigado project were divided into two different levels in terms of active learning (AL) practices and flexible learning spaces acculturation. Schools with the 'advanced level' of AL are considered those with a functional flexible learning space and at least some teachers with experience in active learning activities. The 'starter level' designated schools without a dedicated flexible learning space and teachers with no or little experience in AL. As shown in Table 1, 15 schools are considered 'starters' in terms of AL and ten 'advanced'.

| Case     | Schools   | AL school level: Starter | AL school level: advanced | Total number of teachers | Teaching students from 11 to 14 | Teaching students from 15 to 18 |
|----------|-----------|--------------------------|---------------------------|--------------------------|---------------------------------|---------------------------------|
| France   | 7         | 5                        | 2                         | 22                       | 9                               | 13                              |
| Portugal | 6         | 4                        | 2                         | 17                       | 13                              | 4                               |
| Poland   | 6         | 3                        | 3                         | 12                       | 0                               | 12                              |
| Turkey   | 6         | 3                        | 3                         | 26                       | 26                              | 0                               |
|          | <b>25</b> | <b>15</b>                | <b>10</b>                 | <b>77</b>                | <b>48</b>                       | <b>29</b>                       |

**Table 1.** Distribution of teachers by country, age group and AL level.

<sup>5</sup> Since not all countries have the same levels of education, the present report will use students' age groups instead.



Altogether, the present evaluation report analyses the pre- and post-tests of 522 students and 60 teachers, as well as the ideas, opinions and beliefs of 55 teachers collected during eight group interviews in four countries (Table 2).

| Case     | Schools | Total number of teachers | Students completing pre-test and post-test | Teachers completing pre-test and post-test | Teachers interview |
|----------|---------|--------------------------|--|--|--------------------|
| France   | 7       | 22                       | 154  | 15   | 12                 |
| Portugal | 6       | 17                       | 106  | 13   | 9                  |
| Poland   | 6       | 12                       | 53   | 10   | 10                 |
| Turkey   | 6       | 26                       | 209  | 22   | 24                 |
| TOTAL    | 25      | 77                       | 522  | 60   | 55                 |

**Table 2.** Distribution of teachers and students by data collected.

The particularities of each case study are presented in the following section.

## 3.1 Case studies

### 3.1.1 Case study: France

#### 3.1.1.1 PARTICIPATING SCHOOLS

In France, schools were selected to participate in the Novigado project during spring 2021. Seven state schools from the Poitiers academic region, in the south-west of France, showed interest in the Novigado project. Two of them are advanced in flexible learning spaces and AL methods: the *Lycée pilote innovant international* and the *Lycée de la Venise Verte*. Both have implemented learning labs based on the Future Classroom Lab model. The other five schools did not have flexible learning spaces, but some teachers had shown great interest in AL methods. Some teachers have even implemented AL scenarios before. Two of the five starter schools were soon to have their buildings renovated or move to new buildings. The *Lycée Guy Chauvet* will have its library renovated and transformed into a collaborative space including digital tools, and teachers and students from the *Collège Henri IV* will move to a new school building in May 2022 (see Table 3).

| School name                         | Number of students | Students' age range | N.of groups in the school | Number of levels | Number of teachers | Teachers participating in Novigado | Type of school financing | Area       | Number of inhabitants | City                | Active learning level |
|-------------------------------------|--------------------|---------------------|---------------------------|------------------|--------------------|------------------------------------|--------------------------|------------|-----------------------|---------------------|-----------------------|
| Collège Louise Michel               | 433                | 11-15               | 17                        | 4                | 35                 | 4                                  | Public                   | Rural      | 2.300                 | Loudun              | Starter               |
| Collège Henri IV                    | 670                | 11-15               | 25                        | 4                | 51                 | 4                                  | Public                   | Urban      | 90.000                | Poitiers            | Starter               |
| Lycée Guy Chauvet                   | 481                | 14-25               | 19                        | 5                | 48                 | 2                                  | Public                   | Rural      | 6.740                 | Loudun              | Starter               |
| Lycée pilote innovant international | 540                | 15-21               | 22                        | 5                | 45                 | 4                                  | Public                   | Semi-urban | 8.000                 | Jaunay-Marigny      | Advanced              |
| Lycée Merleau Ponty                 | 1.000              | 15-18               | 45                        | 4                | 115                | 1                                  | Public                   | Urban      | 26.000                | Rocheftort          | Starter               |
| Lycée Louis Audouin Dubreuil        | 1.020              | 15-20               | 40                        | 4                | 100                | 2                                  | Public                   | Rural      | 7.100                 | Saint-Jean d'Angély | Starter               |
| Lycée de la Venise Verte            | 1.360              | 15-21               | 51                        | 5                | 110                | 5                                  | Public                   | Urban      | 60.000                | Niort               | Advanced              |

**Table 3.** Characteristics of schools participating in the Novigado project in France.

Two of the French pilot schools teach students aged 11 to 15 (highlighted in yellow). The smallest one, *Collège Louise Michel*, is situated in a rural area. It has 433 students divided into 17 classes and four levels. Of its 35 teachers, three were designated pilot teachers: a technology teacher, a French teacher and a Portuguese teacher. All three attended the Capacity Building workshop. With the same student age range, the *Collège Henri IV* has 670 students divided into 25 classes and four levels with 51 teachers. This school is situated in Poitiers, an urban area with about 90 000 inhabitants. The three pilot teachers from this school are responsible for three disciplines: Mathematics, History and Spanish.

The other five schools teach students aged 15 to 18, sometimes with levels after the standard secondary education final exam usually taken at age 18 (Bac). The biggest French school participating in Novigado is the *Lycée de la Venise Verte* with 1 360 students (aged 15-21) and 110 teachers, which is situated in Niort. The *Lycée Merleau Ponty* and the *Lycée Louis Audouin Dubreuil* have similar sizes with about 1 000 students and 100 teachers. The difference between them is that the first one is situated in an urban area of about 26 000 inhabitants while the second one is in a rural zone with a population of 7 100 inhabitants. Novigado pilot teachers in these two schools teach French and English.

The *Lycée Guy Chauvet* and the *Lycée pilote innovant international* (LPII) are approximately the same size by number of students (between 480 and 540) and teachers (between 45 and 48). The first one is situated in a rural zone near Loudun, while the second is in a semi-urban area near Poitiers. The LPII is well known in its region for innovative teaching practices and participation in international teaching and learning projects. It is also one of the Novigado project partners. Teachers from LPII designated as school pilots for the Novigado project teach French, History and Spanish. Pilot teachers from the *Lycée Guy Chauvet* teach English and History.

### 3.1.1.2 CBP IMPLEMENTATION

16 out of the 21 teachers participating in the Novigado project attended a two-day workshop on the 23rd and 24th of September 2021 at the Réseau Canopé headquarters in Chasseneuil-du-Poitou. The main adjustments made to the common CBP modules concerned the workshop duration and the reduction of theoretical content. The workshop was reduced to 6 hours 30 maximum per day, to follow the usual duration of teacher training in France. The nine training modules of the CBP were presented in a different order and some modules were implemented in half groups. The training focused on allowing teachers to experience AL and to create AL scenarios, notably on the second day of the workshop. Module 5 was a quick walkthrough of the Scenario Tool. Previous experience in teacher training made French partner organisations choose this solution because, usually, teachers have difficulties meeting again in person immediately after training and in a collaborative and effective manner after the workshop. In this way, teachers from the French pilot schools left the workshop with a scenario ready (or almost ready) to be tested.

### 3.1.1.3 EVALUATION SAMPLE

In France, 21 teachers from eight different schools answered the pre-test and 13 teachers from seven schools answered the post-test. Twelve of them answered both pre- and post-test. For the pre-test, most of the teachers were asked to answer the pre-test during the first of the face-to-face training days in September 2021, so their answers were not

influenced by the CBP content or the first activities. Post-test answers were collected in December 2021.

Altogether, 435 French students answered the pre-test and 207 answered the post-test. 154 students answered both pre-and post-test, which is 35% of the total of pre-test answers and 74% of post-test answers. 12 teachers participated in three group interviews; one of them was carried out face-to-face and the other two were organised online. 17 teacher journals were filled in online, and six peer observations were done by teachers in five different schools.

### 3.1.2 Case study: Poland

#### 3.1.2.1 PARTICIPATING SCHOOLS

Six Polish secondary schools took part in the pilot project. They work with students aged 14-19, in four levels (Table 4).

*Liceum Ogólnokształcące Akademii Dobrej Edukacji* is a small non-state school in Warsaw. Here students work with mentors and have their weekly scheduled lessons shortened. Teachers use ICT tools quite often, so during the pandemic the switch to distance learning was much easier for both teachers and students.

*Zespół Szkół Ogólnokształcących No. 8 - 17th Liceum Ogólnokształcące* in Gdynia; *Liceum Ogólnokształcące Filomata* in Gliwice and *1st Liceum Ogólnokształcące im. A. Mickiewicza* in Ruda Śląska – they are three schools identified in Novigado as somewhat more advanced in use of AL methods and flexible learning spaces.

*Liceum Ogólnokształcące Filomata* is a non-state school with 154 students and 42 teachers, situated in the city of Gliwice.

*1st Liceum Ogólnokształcące im. A. Mickiewicza* in Ruda Śląska is a state school housed in a building from the end of the 19th century. It is the oldest school in the city and it was created for children of state workers. The school has a theatre and comfortable outdoor spaces, but on the other hand it has some architectural barriers such as narrow corridors.

| School name  | Number of students | Students' age range | N. of groups in the school | Number of levels | Number of teachers | Teachers participating in Novigado | Type of school financing | Area  | Number of inhabitants | City        | Active learning level |
|--|--------------------|---------------------|----------------------------|------------------|--------------------|------------------------------------|--------------------------|-------|-----------------------|-------------|-----------------------|
| <b>I Liceum Ogólnokształcące im. A. Mickiewicza</b>                            | 396                | 14-19               | 15                         | 4                | 40                 | 2                                  | Public                   | Urban | 138.000               | Ruda Śląska | Advanced              |
| <b>II Liceum Ogólnokształcące z Oddziałami Dwujęzycznymi im. Emilii Plater</b> | 546                | 14-19               | 19                         | 4                | 53                 | 2                                  | Public                   | Urban | 197.500               | Sosnowiec   | Starter               |
| <b>Liceum Ogólnokształcące Akademii Dobrej Edukacji</b>                        | 29                 | 15-18               | 4                          | 4                | 30                 | 2                                  | Private                  | Urban | 1.765.000             | Warsaw      | Starter               |
| <b>Liceum Ogólnokształcące Filomata</b>  | 154                | 15-18               | 6                          | 4                | 42                 | 2                                  | Private                  | Urban | 180.000               | Gliwice     | Advanced              |
| <b>ZSO 8 - 17 Liceum Ogólnokształcące</b>                                      | 320                | 15-19               | 10                         | 4                | 26                 | 2                                  | Public                   | Urban | 246.000               | Gdynia      | Advanced              |
| <b>Zespół Szkół Ekonomiczno – Usługowych im. Fryderyka Chopina</b>             | 400                | 15-19               | 23                         | 4                | 63                 | 2                                  | Public                   | Rural | 2.000                 | Żychlin     | Starter               |

**Table 4.** Characteristics of Polish schools participating in the Novigado project.

*2nd Liceum Ogólnokształcące z Oddziałami Dwujęzycznymi im. Emilii Plater* in Sosnowiec is a state school with 546 students in 19 classes and 53 teachers. It is a bilingual school, cooperating with many entities, including University of Silesia, Polish Television, and the National Centre for Nuclear Research in Świerk. Teachers try to involve students in activities with external experts (e.g. within the 'Invite me to your lesson' initiative), so students can talk on various topics and teachers can stimulate discussions. Students are often invited to work on projects (e.g. Erasmus+) and often enter decision-making situations where they have to work in groups and plan future activities.

Finally, *Zespół Szkół Ekonomiczno – Usługowych im. Fryderyka Chopina* in Żychlin is a state technical school for nutrition, shipping, forestry, agribusiness and advertising among other subjects. There are 320 students studying there, mostly from rural areas and from the nearest city, Konin.

### 3.1.2.2 CBP IMPLEMENTATION

The Polish workshops took place on 17-18 September 2021 in Warsaw (previously in June there was the initial online workshop with an introduction to the Novigado project). Thirteen teachers from six Polish schools took part in the training. They had varied levels of awareness in using AL pedagogy and came from schools with varied experience in using the learning environments. They also represented different teaching subjects: Polish, English, Sciences, Humanities and Mathematics.

The order of some training modules was adapted from the Novigado CBP to the needs of the Polish case teachers. Some activities were partially changed, added or skipped to fit the style of the trainers. If for some teachers the first two modules were a little too obvious and too theoretical on the first day of training, they could try out various types of activities. The second day was mainly devoted to creating a lesson scenario using active methods. This meant that assessment and feedback methods were introduced briefly but the participants received translated materials regarding this part of the workshop. The teachers also did not have much time to test out the Scenario Tool themselves.

### 3.1.2.3 EVALUATION SAMPLE

Twelve teachers from six different schools answered the pre-test and ten teachers from the same schools the post-test survey. For Poland, there were 201 students who answered the pre-test and 82 in the post-test. There were 53 students who answered both pre- and post-test, which is 26% of the total of pre-test answers and 65% of post-test answers. Ten teachers participated in an online group interview. Eleven peer observations were conducted by ten different teachers and two online teacher's journals were filled in.

## 3.1.3 Case study: Portugal

### 3.1.3.1 PARTICIPATING SCHOOLS

The pilot schools from Portugal were all state schools and mainly in rural areas (Table 5). They usually teach students aged 3 to 14. Within the Novigado programme, schools also had students up to age 18: Vila Nova de Cerveira and Salvaterra de Magos. All schools were about the same size regarding the number of students (around 1000) and teachers

(around 100), except *Agrupamento de Escolas Alto da Azambuja* in Manique do Intendente with 330 students and 40 teachers and Salvaterra do Magos school with 1 780 students and 180 teachers.

| School name  | Number of students | Students' age range | Number of groups in the school | Number of levels | Number of teachers | Teachers participating in Novigado | Type of school financing | Area            | Number of inhabitants | City                             | Active learning level |
|--|--------------------|---------------------|--------------------------------|------------------|--------------------|------------------------------------|--------------------------|-----------------|-----------------------|----------------------------------|-----------------------|
| Agrupamento de Escolas Afonso Henriques                            | 1.231              | 3-14                | 55                             | 12               | 110                | 5                                  | Public                   | Rural           | 4.547                 | Alcande and surroundings         | Starter               |
| Agrupamento de Escolas Alto da Azambuja                            | 330                | 3-14                | 12                             | 12               | 40                 | 3                                  | Public                   | Rural           | 1.216                 | Manique do Intendente            | Starter               |
| Vila Nova de Cerveira  | 1.056              | 3-18                | 51                             | 15               | 120                | 3                                  | Public                   | Rural           | 9.253                 | Vila Nova de Cerveira            | Starter               |
| Salvaterra de Magos  | 1.780              | 3-18                | 71                             | 15               | 180                | 1                                  | Public                   | Urban and rural | 21.613                | Salvaterra de Magos              | Starter               |
| Cego do Maio   | 1.169              | 3-14                | 56                             | 12               | 123                | 4                                  | Public                   | Urban and rural | 62.836                | Póvoa de Varzim and surroundings | Advanced              |
| Agrupamento de Escolas Fernando Casimiro Pereira da Silva (AEFCPS) | 1.200              | 3-14                | 52                             | 12               | 115                | 1                                  | Public                   | Urban and rural | 10.000                | Rio Maior and surroundings       | Advanced              |

**Table 5.** Characteristics of schools participating in the Novigado project in Portugal.

Two out of the six pilot schools from the Portuguese case have characteristics that are considered in Novigado as advanced in terms of AL and use of flexible learning spaces. For instance, *Agrupamento de Escolas Fernando Casimiro Pereira da Silva* has implemented five different learning spaces.

### 3.1.3.2 CBP IMPLEMENTATION

The Capacity Building Programme workshops took place in seven evening sessions (from 17:30 to 20:00), on 11th, 12th and 18th October, 8th November, 22nd and 31st January. During those 2.5 hour long sessions trainers and teachers had time to go through the nine CBP modules. It was observed that during the workshop teachers especially liked the AL activities they could try out: Genius Hour and Rock, Scissors, Paper were completely new for them. The more theoretical content of the training was adapted to teachers' knowledge on the subject and was quickly revised when notions were familiar.

### 3.1.3.3 EVALUATION SAMPLE

In Portugal, the CBP started with a delay compared to other countries, so teachers did not have the opportunity to answer the pre-test before implementing an AL scenario. 15 teachers from six different schools answered the post-test.

There were 158 students who answered the pre-test and 156 the post-test. 106 students answered both pre-and post-test, which is 67% of the total of pre-test answers and 68% of post-test answers. Nine teachers took part in an online group interview.

### 3.1.4 Case study: Turkey

#### 3.1.4.1 PARTICIPATING SCHOOLS

Turkey participated in the project with six state schools from different corners of the country (Table 6.) Besides completing the instruments of the project, all schools in the Turkish case built their own blogs where they could share ideas and photos of their work and encourage other teachers.

| School name                       | Number of students | Students' age range | Number of groups in the school | Number of levels | Number of teachers | Teachers participating in Novigado | Type of school financing | Area       | Number of inhabitants | City       | Active learning level |
|-----------------------------------|--------------------|---------------------|--------------------------------|------------------|--------------------|------------------------------------|--------------------------|------------|-----------------------|------------|-----------------------|
| Yavuz Selim Ortaokulu             | 759                | 5-6 and 10-14       | 31                             | 4                | 57                 | 5                                  | Public                   | Urban      | 1.769.000             | Adana      | Starter               |
| Feride Bekçioğlu Secondary School | 1.300              | 10-13               | 45                             | 4                | 71                 | 5                                  | Public                   | Urban      | 5.663.000             | Ankara     | Advanced              |
| Nuri zekiye has secondary school  | 720                | 11-14               | 24                             | 4                | 44                 | 4                                  | Public                   | Semi-urban | 1.799.000             | Diyarbakır | Starter               |
| Silifke Toki Ortaokulu            | 841                | 13-14               | 32                             | 4                | 55                 | 5                                  | Public                   | Semi-urban | 120.000               | Mersin     | Starter               |
| Kırkmağara İlk/Ortaokulu          | 224                | 5-13                | 9                              | 4                | 12                 | 3                                  | Public                   | Rural      | 1.750                 | Şanlıurfa  | Advanced              |
| Cumhuriyet Ortaokulu              | 525                | 10-14               | 27                             | 4                | 47                 | 4                                  | Public                   | Urban      | 138.000               | Ercincan   | Advanced              |

**Table 6.** Characteristics of schools participating in the Novigado project in Turkey.

*Feride Bekçioğlu* is a state secondary school in Ankara which has 1 300 students and 71 teachers. It is the biggest school in the Turkish case and it is what Novigado considers an advanced school in AL and the use of flexible learning space.

*Yavuz Selim Secondary School* is a state school situated in Adana. It is a starter school in AL but planning to develop a flexible learning space. Renovation is going on in some parts of the school already. The 579 students of this school are aged 10 to 14, with 57 teachers.

*Nuri Zekiye Has* is a state secondary school in Diyarbakır which has 44 teachers and 720 students aged 11 to 14. It is considered a starter school in the field of AL but wants to practise AL more with students.

*Toki Secondary School* is a state secondary school in Mersin. There are 55 teachers and 841 students aged 11 to 14. Like *Nuri Zekiye Has*, *Toki* is a starter school but open to practising AL more.

*Kırkmağara Secondary School* is a state school in Şanlıurfa with 12 teachers and 224 students. The age range of students is 5-13. The school is advanced in AL.

*Cumhuriyet Secondary School* is a state school in Erzincan that has 525 students and 47 teachers. This school has a flexible learning space and is engaged in AL to some extent, so it is considered an advanced level school in Novigado.



### 3.1.4.2 CBP IMPLEMENTATION

In Turkey, 29 pilot teachers (including principals) met at a workshop that took place in Ankara on 15th and 16th September 2021. The Capacity Building workshop started by providing teachers with brief information about the workshop programme. The programme continued with informative presentations on each module in which the teachers were actively engaged, implementing AL strategies in a flexible learning environment. The teachers, who were organised in different subject areas with different experiences, had the chance to share their knowledge and implement AL in flexible learning spaces. The workshop programme included sessions about AL, the 4Cs in education and learning scenarios, learning spaces and innovative teaching approaches in flexible learning spaces.

### 3.1.4.3 EVALUATION SAMPLE

In Turkey, 26 teachers from six different schools answered the pre-test and 30 teachers for the post-test survey. 22 answered both.

256 students answered the pre-test and 245 answered the post-test. 209 students answered both, which is 82% of the total of the pre-test answers and 85% of the post-test answers.

24 teachers took part in three online group interviews. 89 teacher's journals were filled in by Turkish teachers. In total, 26 peer observations were carried out in the six pilot schools: two observations per school and per period of the pilot programme.

## 3.2 Perceived changes

### 3.2.1 Perceived changes in students

Teachers interviewed in the four case studies (France, Poland, Portugal and Turkey) were asked about the changes that they had perceived during and after the Novigado pilot phase.

#### 3.2.1.1 STUDENTS DURING THE AL ACTIVITIES

To a greater or lesser extent, the results of the four cases concur that the biggest change observed was in students' attitude during learning activities, particularly concerning motivation, engagement and attention.

In decreasing order, teachers from Portugal (6/6), Turkey (23/24), France (7/12) and Poland (4/9) reported greater **motivation** in students than they were used to, during the learning activities. Throughout observation and discussions in class, teachers reported that students enjoyed the proposed activities; they were enthusiastic and interested while engaged in activities (i.e. defending their point of view). Students with different learning abilities were more relaxed during these activities.

Teachers from Poland (7/9), Turkey (18/24), Portugal (2/6) and France (4/12) also identified greater student **engagement** during the activities. After the pandemic periods of lockdown, students appreciated the opportunity to work in groups or do peer work, interacting and exchanging with one another. Students showed a willingness to work and participate in activities:

*TFR9: 'We have less... Well, personally, this year with this activity I have almost no students who didn't deliver their work, for instance, or who refuse to talk or make a presentation in class. The other day, I did an activity with 34 students. Only one didn't hand in any work. Out of the 34. Whereas before, for oral presentations, there were students who ran away, "I won't come"... well, we all know these kinds of dynamics. And now, in fact, even students who have some difficulties and have a bad time talking in front of others have been applauded because they have made the effort. The other students encouraged them, it was fantastic.'*  
French teacher of 15-to-17-year-old students

*TTK12: 'All of them were very enthusiastic, curious and active from the beginning to the end of the process (...) and there was almost no absenteeism.'*  
Turkish teacher of 11-to-14-year-old students

Even students with different abilities or students who usually do not want to participate were willingly involved during AL activities:

*TPL9: 'And yes, I had some results which I hadn't expected before, as during this lesson I managed to activate some students who had usually been quite passive during my previous lessons. I managed to engage a boy who suffers from mutism, who usually just moved around during group work, and in the case of this lesson, he participated, he wrote down some words [that he contributed]. Also, I have a girl student who had usually been silent and hadn't been engaged, but during this [Novigado] lesson she volunteered to represent her group.'*  
Polish teacher of 14-to-19-year-old students

Almost a third of the Turkish (8/23) teachers reported an improvement in students' **attention** during the activities.

Combining the results regarding motivation, engagement and attention, the Turkish teachers are those who most reported more student willingness in AL activities during the pilot phase.

Usually, these three aspects are observed as a triad that allows students to carry out activities with valuable results. However, to relativise these results, it is important to consider that the observed students' motivation and engagement could have been influenced by variables such as the novelty of the scenarios, movement, changes in seating arrangements or the use of different tools. It is difficult to untangle the factors involved in motivation, as explained by Amadieu and Tricot (2014)<sup>6</sup> regarding the use of digital tools.

In the overall analysis of the four cases, it is important to point out that 57% of the teachers from schools that are considered starters in terms of AL reported observing an increase in students' motivation while only 47% of the AL advanced teachers reported the same. This may be explained by factors such as the novelty of the activities in the context. However, more than half of the teachers in advanced schools (53%) reported improvement in students' engagement while only 41% of the teachers in starter schools reported it. In terms of students' increased attention, the difference is minimal. In short, starter-school teachers observe motivation while advanced ones see engagement.

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<sup>6</sup> F. Amadieu and A. Tricot, *Apprendre avec le numérique: Mythes et réalités*. Paris: Retz, 2014.



Besides students' attitudes, teachers in the four case studies reported that, during the activities, students were especially focused on **searching for information** and content from different sources. No difference was observed between teachers from AL starters and advanced schools. However, in the pre-and post-test results, students from the four case studies showed no change. Their level of agreement with the statement 'At school I use a wide range of activities and resources to learn' was the same before and after the pilot phase.

Less than half of the Turkish teachers (9/24) also reported students feeling proud of themselves after completing the proposed activities. They described an improvement in students' **self-confidence**, especially in those who were shy or afraid of talking in class. Teachers explained that in a virtuous circle, self-confidence increased while students participated and vice versa:

*TTK13: 'During the activities, I observed that as the student participates, the sense of self-confidence improves and as the sense of self-confidence improves, personal participation increases (...) their self-confidence and participation gradually increase. So they realise that they can learn some things on their own'*  
*Turkish teacher of 11-to-14-year-old students*

Accordingly, this is one of the reasons why some of the Turkish and French teachers reported an increase in students' **participation**.

Although most of the students showed engagement during AL activities, **some others were reticent** and did not get involved.

*TFR7: 'Those that are not motivated, here, they waited. They are nice students, and they waited. They waited for everything to pass. They waited for others to do their work. They were just waiting. Whereas others, who are not always motivated to work, participated well in the proposed activity. And the peer exchange time was very interesting for me because it allowed students to create a kind of mentorship. The students that finished first could help those that were behind and had some difficulties. This produced a homogeneous level at the end of the class. But really, the exchange time allowed students to homogenise their knowledge. Of course, there is a risk because afterwards, some students were only waiting for this exchange time but did not exchange at all. Instead, they directly received the information from others.'*  
*French teacher of 15-to-17-year-old students*

Teachers in the four cases analysed the reason students might have been reticent in getting involved in AL activities. A big part can be summed up in the lack of student adaptability to different pedagogical models other than the traditional class configuration that is mostly focused on the passivity of students towards the teacher and their own learning. Students are less used to working autonomously or in groups and, as a result, they lose concentration and motivation in activities. Teachers observed that in some cases, even the body posture to work in groups was missing:

*TFR10: 'Yes, yes, yes. I have a classroom with 36 students, 36 tables, a whiteboard and a teacher's desk, right. And just the fact of asking students to work together and explaining to them that there is also body posture to work... At first, they do not sit in front of one another so they have to turn around or, they line up four tables next to one another.... They have somehow realised that when working*

*together, there is a body posture to have, a way to look to be able to have a conversation, it is better to be in front of one another, etc.'*

*French teacher of 15-to-17-year-old students*

This was especially observed by teachers who worked with eight-year primary-school graduates in the Polish context. The difficulty with these students was that AL activities were perceived by students like a free or fun time:

*TPL8: 'This resulted in their difficulties with collaboration, with assigning roles, with group work, with creativity and openness – I can see such blockades in those classes [of eight-year primary-school graduates]. They seem to want to get a ready-made solution from me and they might be willing to learn that, or maybe even that would be too problematic. But when I require from them some searching, self-efficacy, creativity, it seems to be very, very hard for them. So, my reflection is that in those classes of 8-year primary-school graduates I need to take a step back, and they need to learn those methods – I need to work on their competences.'*

*Polish teacher of 14-to-19-year-old students*

*TPL6: 'All my other classes comprise middle-school graduates. I decided to enter the [Novigado] project with them, but I had to teach them for two and a half months what this kind of lesson [an active lesson] is, that it's not just a way of having fun, a kind of joke. They had problems concentrating. They found it hard to learn that they should take turns speaking, that it's worth listening to one another, that it's not free time or a form of relaxation. They came to our school with a very underdeveloped knowledge of themselves and of other people around them.'*

*Polish teacher of 14-to-19-year-old students*

Teachers mentioned other possible reasons for some students not to get engaged in AL activities: students' concentration problems during group work, shyness about interacting in a group and a lack of preparation for this kind of activities. All this sometimes resulted in a loss of motivation.

### 3.2.1.2 STUDENT'S RESULTS OBSERVED AFTER THE AL ACTIVITIES

In terms of student results after the AL activities in the pilot phase, some of the Turkish (8/24), Portuguese (4/6) and Polish (1/9) teachers reported improvement in their student's **4C skills**. In decreasing order, they reported students' development in communication and expression skills, creativity, critical thinking and collaboration.

In terms of **communication**, after AL scenarios, the students felt more confident expressing their opinions orally, communicating with their peers, arguing or/and presenting:

*TPT5 and TPT6: '(...) but the student who is even more able or comfortable in communicating in an oral presentation, this is valued and is seen as important or more than just the answer to the test, and in this way everyone can show the added value they have in the different strands.'*

*Portuguese teachers of 11-to-17-year-old students*

*TPL4: 'I also liked the fact that during the discussion students, the groups tried to convince one another that they were right. It happened quite a few times that a person who was in one group after some time changed the group that he/she identified with. I also liked the fact that the discussion was quite fiery and*

*convincing. Very often I had to interrupt this discussion because it would go on and on.'*

*Polish teacher of 14-to-19-year-old students*

Almost half of the Turkish teachers interviewed (10/24) observed **better student results** in terms of permanent learning. To a lesser extent, a quarter of the Turkish teachers (6/24) reported that students improved their **information-searching skills**.

Some other teachers from the four cases reported that students acquired **practical skills** and **transferred them to their daily lives**. Conversely, students transferred information from their daily lives to the learning activities. Students' test results mostly confirm these observations. Portuguese, French and Turkish students positively agree with the statement: 'I can easily relate what I learn at school to my daily life activities'. By contrast, students from the Polish case study disagree with the statement. When students were asked how much they agreed with the statement 'My teacher knows and considers my interests when preparing the learning activities', students from the four cases agreed. However, the Turkish students agreed most with the statement while the Polish students agreed least.

On the same topic, teachers were also asked to indicate how much they agreed with the statement 'When designing learning activities, I consider my student's interests in and out of school'. Teachers from all cases agree with this statement; however, Portuguese and Turkish teachers agree strongly. These results show that teachers and students from the same case do not always have the same opinion about the learning activities and the connection with students' daily lives and interests. The most significant example is from the Polish case, where students disagree with the statement 'I can easily relate what I learn at school to my daily life activities' while teachers agree with 'When designing learning activities, I consider my student's interests in and out of school'.

Regarding different aspects of autonomy, most of the Turkish teachers interviewed but also some Portuguese and French teachers reported an improvement in **students' learning autonomy**, especially in terms of self-guiding their learning. Students were observed taking the initiative more, solving problems and making decisions and thus feeling more efficient in learning.

*TPT4: 'I was absent here for a few minutes, if you noticed, and then went to the classroom. The students were completely alone at that time in the classroom. I had left them an assignment in the classroom, I walked in and was amazed. Two had taken over the projector, responded to the questions I had, they were watching a TED Talk that I had left and that's it. I just went there to see if everything was ok. It was ok. I think at the level of autonomy, mainly, that it worked very well. Of course. I'm not saying it's all classes.'*

*Portuguese teacher of 11-to-17-year-old students*

*TTK22: 'They realised that they don't need a teacher all the time to learn something.'*

*Turkish teacher of 11-to-14-year-old students*

In the pre-and post- test, students were asked to indicate how much they agree with the statement 'I can have a voice in what I learn and how I learn'. Students from all countries agreed, in the Turkish case the most (average score pre-test is 3.2) and in Polish case the

least (average score pre-test 2.8). Post-test results decreased a little in countries with older students like France and Poland and increased in Turkey. No changes were observed on this question in Portugal between the beginning and the end of the pilot phase; students agreed with this statement in both tests.

About students working with one another, less than half of the Turkish teachers and a third of the French teachers reported that during AL activities students helped one another willingly, cooperating, collaborating and working with peers.

*TFR2: 'I haven't implemented a scenario, etc., but the objective was for them [students] to learn to help one another doing the exercises, etc. And I had some feedback... In fact, they were happy to be able to help one another and work like that. (...) I can see them collaborating [in the future].'*

*French teacher of 11-to-14-year-old students*

Essentially, teachers from AL starter schools observed more students helping one another than teachers from advanced schools. By contrast, peer work was observed the most by teachers from advanced schools. This might mean that peer work is more often implemented when AL is stronger within the group or school. In fact, teachers in advanced AL schools underlined the need to be aware of some students' preconceptions if peer work or group work are frequent.

*TFR5: 'They are students in the first year of high school, they work in groups regularly, that is part of our pedagogical practices, so, there is no... Or maybe there is, it's a preconception that misleads them... I have many times insisted on instructions in the second class because they are used to... for instance, doing individual work and putting it all together after. They are also used to re-assembling something from two individual students' work. So, when I put them in pairs to look at the "passports" [an activity outcome], they thought that they were supposed to do the same without observing the skills students have acquired individually. They were so convinced of it, although the instructions were to observe one another's work.'*

*French teacher of 15-to-17-year-old students*

### 3.2.1.3 DIGITAL TOOL USE

Students were asked to declare their digital competences by distinguishing their digital competences for learning purposes from their competences for communication with peers and entertainment purposes. A three-point scale was proposed with the statements:

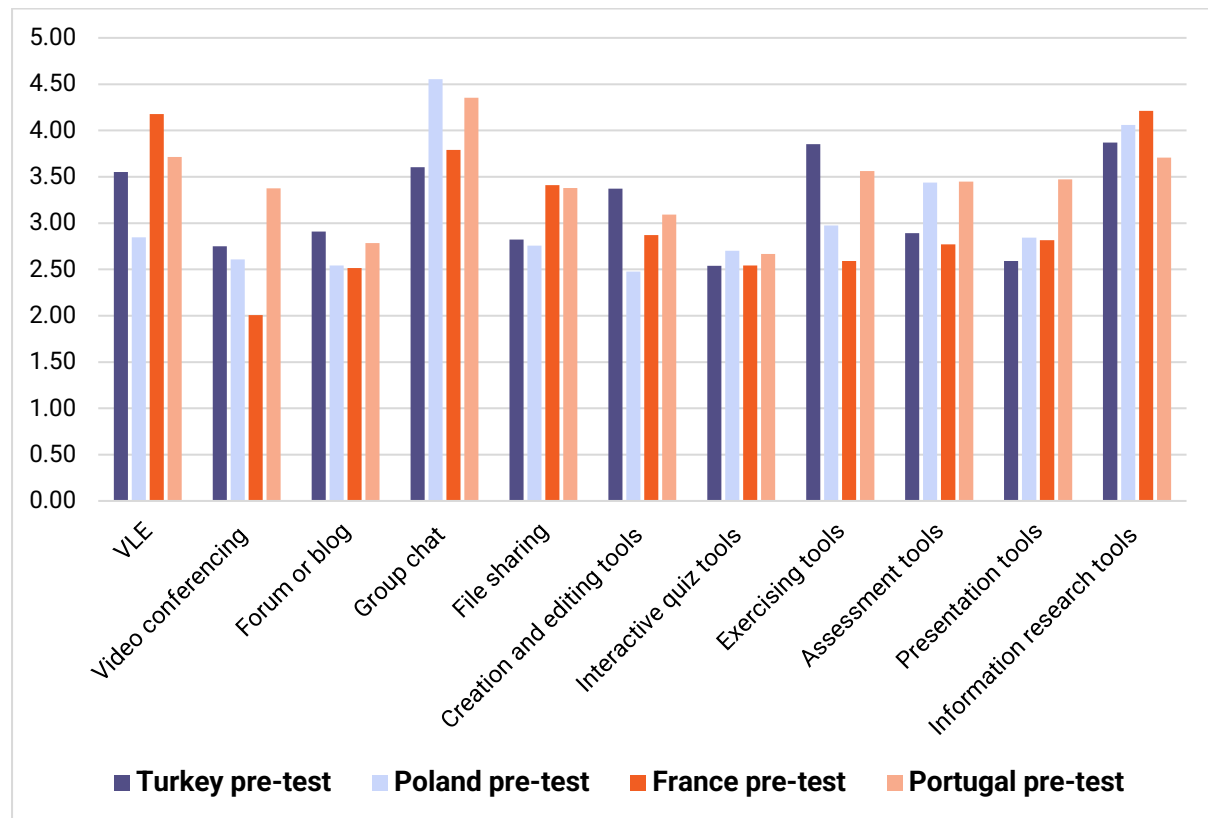
- 'I can often show others how to use digital devices and tools.'
- 'I am autonomous in the use of digital devices and tools almost all the time.'
- 'I need guidance to use digital devices and tools most of the time.'

Students from the four case studies declared being autonomous in the use of digital devices and tools for communicating with peers and for entertainment purposes as well as learning purposes. Scores are very similar among the four cases.

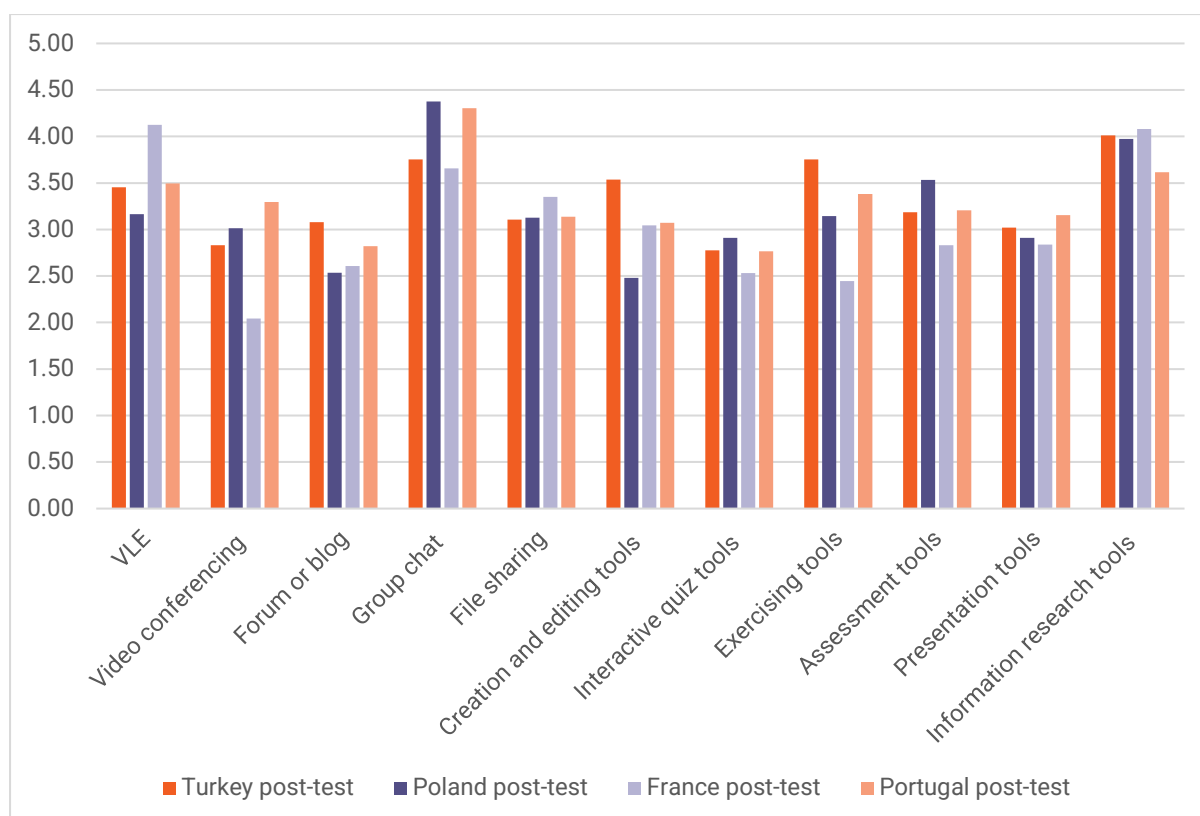
Students were asked to report on their use of digital tools and the frequency (daily, once or twice a week, twice a month, occasionally, never). If they did not use them at all they could choose 'does not apply'. It is important to note that in these questions students are

asked to self-estimate their frequency of use. This data cannot be considered the same as the actual tracking of use.

The standard deviation shows big individual differences among students of a country and from one school to another. Differences are smaller between countries when it comes to well-known tools such as the search engines.



**Figure 1.** Digital tool use in students' pre-test. 5 = use on a daily basis, 1=never



**Figure 2.** Digital tool use in students' post-test. 5 = use on a daily basis, 1=never

As Figures 1 and 2 show, in France and Turkey, students use **information research tools** (browser, dictionary, encyclopaedia) daily and, in Poland, use ranges from daily to weekly. To a lesser extent, Portuguese students declare using information research tools weekly.

Students declare they use **group chat systems** (Messenger, WhatsApp, etc.) daily in the four case studies. Big differences in average and median scores and high standard deviation show that inside a case, there are students who use group chat systems frequently and others who do so only occasionally.

The **virtual learning environment** (VLE) is used most by French students who declare using it daily, while Portuguese and Turkish students use it once or twice a week. VLE is a less well-known tool in Poland, where students use it about twice a month in the pre-test and occasionally in the post-test.

Portuguese students claim to use **video conferencing systems** about twice a month. It is important to note that in December 2021 and January 2022 Portugal was in lockdown due to the COVID-19 pandemic. This context might have encouraged a more frequent use of video conferencing tools. Students from the Turkish, French and Polish cases declare a more occasional use of a video conferencing system.

Regarding the use of **Internet forums or blogs**, students from the Turkish and Portuguese cases declare they use them between occasionally and twice a month. Students from the French and Polish cases use forums and blogs occasionally.



**File-sharing systems** (SharePoint, Google Drive, Dropbox, etc.) are most used by students in France, once or twice a week. Next come the Portuguese students with a weekly to monthly use. Turkish and Polish students declare a monthly to occasional use.

Turkish students declare using **creation and editing tools** (audio, video, voice, image editing, online tools) once or twice a week while the Portuguese and French use them about twice a month. The Polish students use these tools only occasionally.

**Interactive quiz tools** (Wooclap, Mentimeter, etc.) are most used by students from the Portuguese case; they use them twice a month. Students in other cases use these tools more occasionally. In Poland, quiz tool use seems to have increased during the pilot phase, since the students went from occasional use to twice a month use. This result seems logical because teachers were introduced to these tools during the Novigado training sessions and they can be easily integrated into AL settings.

Students from the Portuguese and Turkish cases declare using **exercise tools** once or twice a week, which makes them the biggest users in Novigado. Students from the French case (occasionally) and the Polish case (twice a month) are those who use them the least.

**Assessment tools** are most used by students in Poland (weekly). In the Portuguese case, students declare they use them between monthly and weekly. In the Turkish and French cases, assessment tools are used between monthly and occasionally.

**Presentation tools** (PowerPoint, Keynote, Prezi) are used once or twice a month in the Polish and French cases and no major changes were observed between pre- and post-test. In Turkey, students declared in the pre-test using presentation tools occasionally and in post-test their use increased to once or twice a month. In the Portuguese case, students were close to a weekly use in pre-test and in the post-test they use presentation tools twice a month, like students from the other countries.

### 3.2.2 Perceived changes in teachers' practices

#### 3.2.2.1 POSTURE IN TEACHING

Almost half of the teachers interviewed in the four cases (25/51) reported changes in their teaching practices. Two thirds of the Portuguese teachers (4/6), half of the French teachers (6/12) and more than half of the Turkish teachers (15/24) indicated some changes during and after the AL activities. **During the class** teachers reported changes mainly in their teaching posture: they guided students by giving them advice, supervising, explaining or repeating to them the scenario instructions, and preparing the spaces students were going to use. Some teachers reported feeling held back, frustrated and sometimes even destabilised by not having control of students' work. However, some teachers considered that Novigado was a good opportunity to observe and get to know their students better. Teachers pinpointed the teacher's difficulty in being everywhere at once.

*TFR8: 'Later on, the problem will be for teachers to get to multiply themselves because they cannot always be everywhere. [It's a question of] getting a balance to go and listen to this student, then the other one and being able to give them little bits of help'*

*French teacher of 15-to-17-year-old students*

One comment sums up the spirit of some teachers:

*TPT4: 'But I think that more important than space, moving around in space, is the desire to get students to work with them and to discover... that's what's important. More than the physical space, which is important, it is our space with the students.'*  
*Portuguese teacher of 11-to-17-year-old students*

This is confirmed by teachers' pre- and post-tests, where teachers from the four cases agree strongly with the statement 'My role as a teacher is to motivate students' discovery while supporting them'. When converted to numbers, the agreement level is higher than for any other question. The median for all tests is 4 and average scores for this question are between 3.7 and 3.9. It should be borne in mind that teachers participating in the Novigado pilot programme are usually those who are identified as 'innovators' and are keen to try out new methods. They probably have a different state of mind than other teachers from the same school or country.

Teachers observed two main changes in the **preparation before the class**: they began to create strategies to get students involved in activities and to design activities to make students discover information and knowledge by themselves, avoiding traditional top-down settings. The biggest challenge was to conceive activities that allow each student to be active regarding their learning process and make them cooperate. All this increased the preparation time to exceed the follow-up time that teachers devoted to students during the class activities.

*TFR1: 'I really felt held back, really, very much. My work was upstream, it took us a lot of preparation time but during the class, there were plenty of moments where I was at the back. When students work in expert groups, for instance, I do not exist.'*  
*French teacher of 11-to-14-year-old students*

### 3.2.2.2 DIGITAL TOOL USE

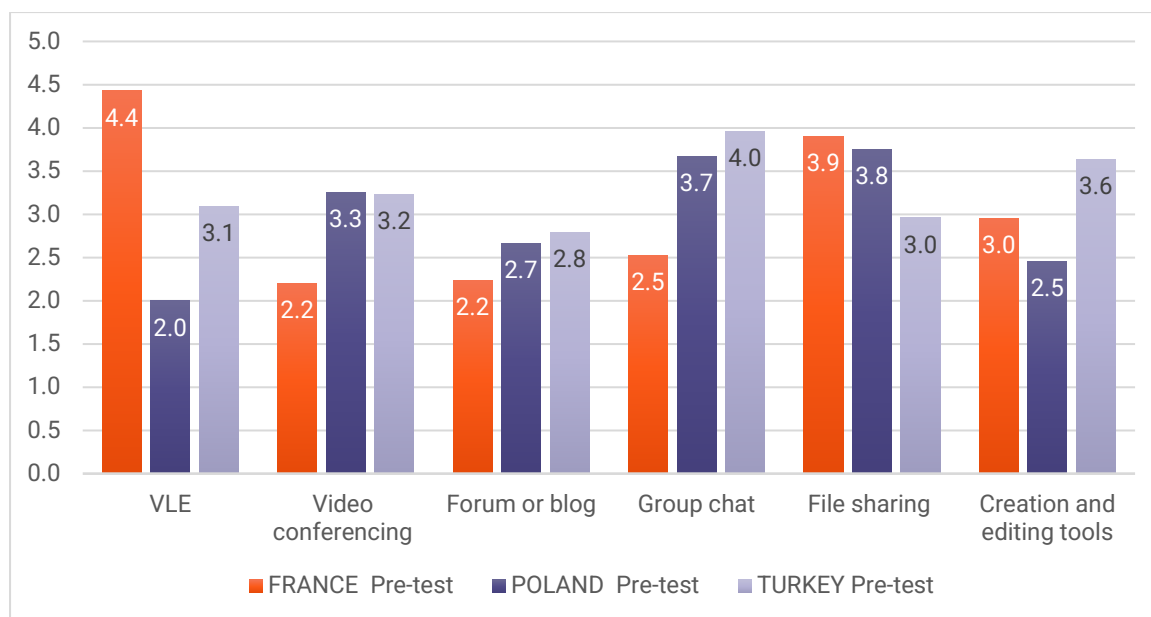
Almost half of the Turkish (10/24) teachers interviewed reported efficient use being made of digital tools during the class. No other case reported this. However, when asking teachers to declare their digital competences to prepare classes and teach as well as for personal purposes, teachers declare that they are autonomous. In the test, they could choose among three levels:

- 'I can often show others (teachers or students) how to use digital devices and tools.'
- 'I am autonomous in the use of digital devices and tools almost all the time'
- 'I need guidance to use digital devices and tools most of the time.'

The average scores of the four cases are very similar concerning digital competences to prepare classes and teach. No significant change was observed between pre- and post-tests.

The teachers' tests showed that there are big differences in tools between cases but also within schools from the same case. High scores for standard deviation in the data show that the choice and frequency of use of digital tools depend on many individual factors.





**Figure 3.** Digital tool use in teachers' pre-test. 5 = use on daily basis, 1 = never (Part 1)

Figure 3 shows half of the list of tools that was proposed to teachers in the test so they could indicate their frequency of use (see also Figure 4 below).

Teachers from the French case show the particularity of using a **VLE** daily. This seems logical since all secondary schools in France are equipped with this tool and it is unavoidable in the daily management of school and class (absences, marks, homework, communication with teachers). Portuguese teachers use virtual learning environments twice a month while Turkish and Polish use a VLE more occasionally.

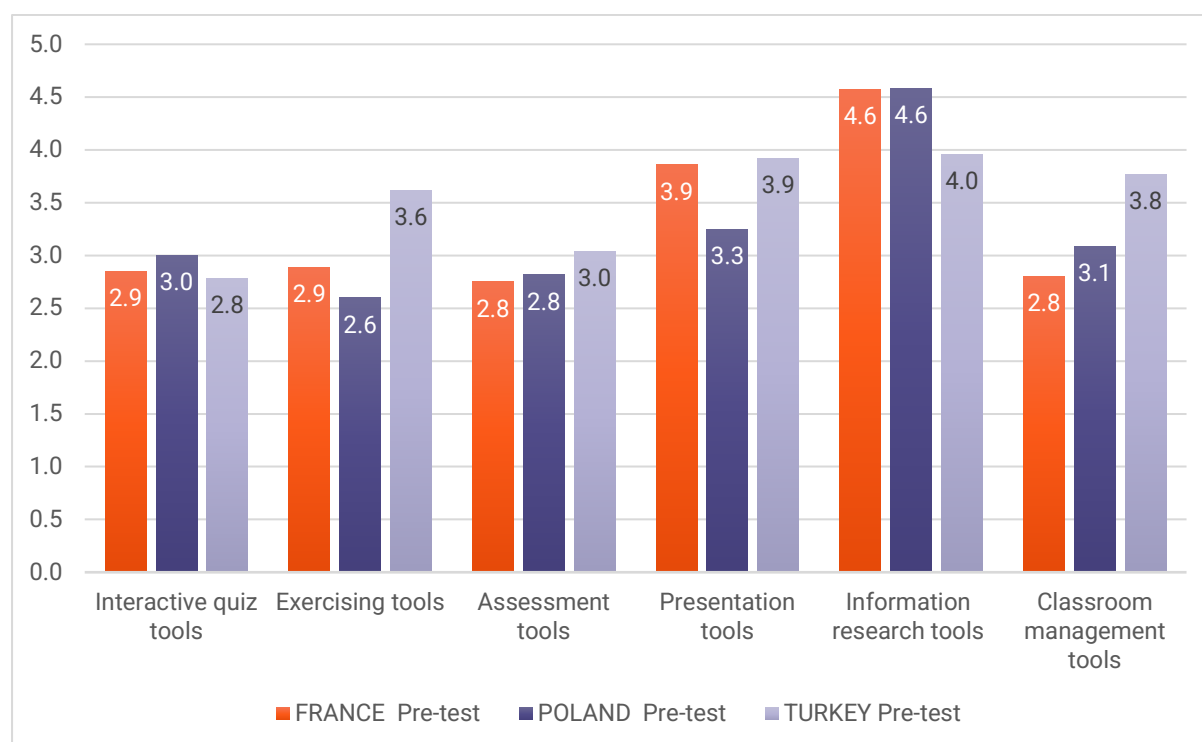
**Video conferencing systems** such as Teams, Zoom, Meet and Webex are the most frequently used by teachers in the Polish case with an increase during the pilot phase (twice a month in pre-test and daily in post-test). Teachers in the Portuguese case declared to use it once or twice a week. Teachers in Turkey and France use it occasionally. When looking at these results it is important to keep in mind tests were answered while some countries, especially Portugal, still had lockdown periods due to COVID-19 pandemic. This might have influenced the frequency of use of video conferencing systems for teaching purposes.

Among all the tools proposed, **Internet forums and/or blogs** are those least used. The results show that Polish teachers use them twice a month while the other cases use them occasionally or less.

**Group chat systems** (Messenger, WhatsApp, etc.) are used daily among teachers from the Polish and Turkish cases, while Portuguese teachers use them once or twice a week. By contrast, teachers from the French case chat only occasionally for teaching purposes.

**File-sharing systems** such as SharePoint, Google Drive and Dropbox are used daily by teachers in the French, Portuguese and Polish cases, but only about twice a month by the Turkish teachers.

**Creation and editing tools** (audio, video, voice, image editing, online tools) are used frequently (once or twice a week) by teachers in France and Turkey while for teachers in Portugal it is twice a month and in Poland it is used occasionally.



**Figure 4.** Digital tool use in teachers' pre-test. 5 = use on daily basis, 1 = never (Part 2)

Among the four cases, **interactive quiz tools** (Wooclap, Mentimeter, etc.) are used the most by Polish teachers (twice a month) and the least by Turkish teachers.

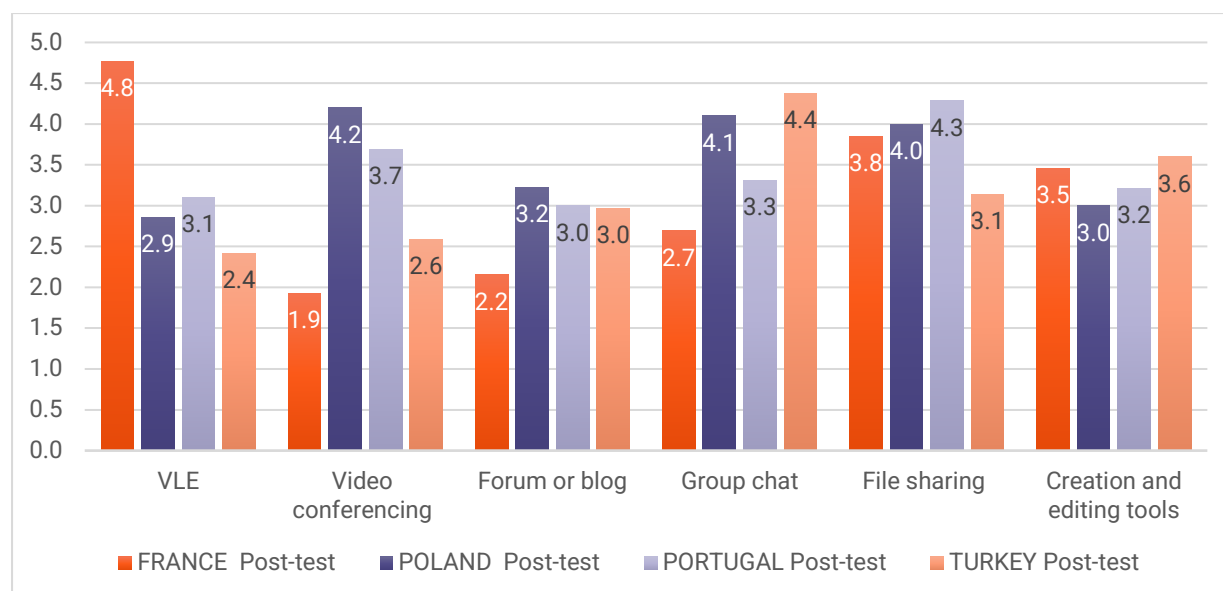
**Exercise tools** are used once or twice a week by the teachers in the Turkish case, but less in other countries. Teachers from the Portuguese case use them twice a month while teachers in the Polish and French cases use them between twice a month and occasionally (the average scores slightly higher for the French teachers and lower for the Polish teachers).

Teachers' results from the cases of France, Poland and Turkey show a small increase in the use of **assessment tools**, especially when observing the median scores. In the French and Polish cases they go from occasional use to twice a month while in Turkey, frequency goes from twice a month to more or less a weekly use. In the Portuguese case the use of assessment tools is the most important compared to other countries: once or twice a week.

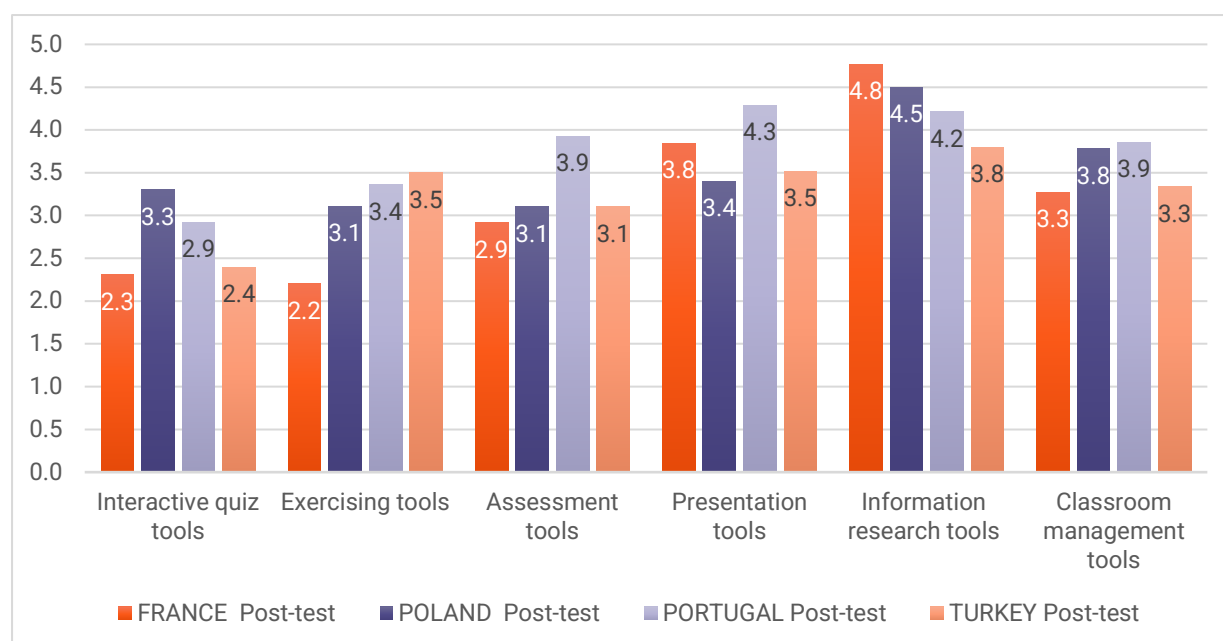
**Information research tools** (browser, dictionary, encyclopedia, etc.) are used daily by teachers in all cases except for the Turkish teachers who say they use them more than once or twice a week.

**Presentation tools** such as PowerPoint, Keynote and Prezi are used daily by teachers in the Portuguese case, while in the other cases they are used once or twice a week.

The results for the use of **classroom management tools** vary greatly within each country case, which suggests that there are personal preferences in this use. High standard deviation is also a sign of a large variety of answers. Still, we observe an increasing use after the project in the French and Polish cases, rising from occasional use to once or twice a week. In the Turkish case, however, there is a decrease from a daily use to once or twice a week. In the Portuguese case teachers say they use it weekly. It is possible to conclude that the four cases have similar frequency use with individual differences.



**Figure 5.** Digital tool use in teachers' post-test. 5 = use on daily basis, 1 = never (Part 1)



**Figure 6.** Digital tool use in teachers' post-test. 5 = use on daily basis, 1 = never (Part 2)

Despite the students' and teachers' declarations of digital tool use, some teachers in AL advanced schools identified the need to reflect on the use of digital tools in accordance with the learning scenario objectives:

*TFR5: '[In our school,] every student is equipped with a PC, they are allowed to use their smartphones and have Wi-Fi access. In my class, sometimes [digital technology] is more of an obstacle than a help because some tools like the automatic translators are now so effective that when I ask [my students] to work in [oral or written] expression or comprehension, they all have the immediate temptation of using these tools. And in this [Novigado] learning scenario I've tried it differently. We were supposed to get to oral expression.... I didn't want them to just type their text in French on the keyboard and read it after in Spanish. For me, that was not useful. So, on the contrary, I chose to work without digital tools. I decided to install some printed thumbs-up at the end of the classroom because although they couldn't use digital tools, I was quite aware that I could not answer their questions all the time. I print or recycle some documents that students have created before and I hang them on the wall, or I put them on the table. That was very practical for me too because I could observe who moved to see and do what. In the end, it was a more active class, in terms of movement too, because they are not static behind their screens... without me knowing what they are consulting or looking at.'*

*French teacher of 15-to-17-year-old students*

#### 1.1.1.1 GUIDANCE TOWARD STUDENTS' METACOGNITION

More than half of the French teachers (7/12) and some of the Turkish (6/24), Polish (2/9) and Portuguese teachers (1/6) explained the strategies they carried out to make students reflect on their own learning. Some teachers were surprised by the quality of feedback students could deliver. Actively involving students in the Novigado project by introducing them to the pilot phase allowed teachers to encourage their students to self-reflect on their learning. It also facilitated teachers getting feedback about how their scenario was organised.

*TFR11: 'My class of second-year [of high school], they are funny, they raise their hands, and they will tell me "Madam, we think it would be better if we do a little bit more like this..."', they give me advice but in a gentle way, it is really for the group work. "Now, we think it works better if...." That's great! They have got there naturally... (...) It's incredible!'*

*French teacher of 15-to-17-year-old students*

Some teachers realised that students needed to talk at the end of the class regarding how they felt about the new activities. In a debate activity, students were surprised at how the teacher was seriously involved in the activity and played a role all along. This attitude helped them to take on their role in the activity.

*TPL6: 'So they told me a lot about how they collaborated, how they discussed a joint position. I told them that, as a marshal, I cannot know how they arrived at some things. So we treated it very seriously, and they told me that the way I introduced them into this, that it was a serious activity, that I am going to be the final judge, that judges will be chosen from among them and they don't know who*

*it will be. All this created a sort of a hype among them, they could feel that they were entering some strategy for the lesson, some sort of a drama. So for the time of those three lessons, they were introduced into a new reality, they were no longer being themselves, but they were the actors. They liked the fact that, thanks to all this, they were able to detach themselves from their reality.'*

*Polish teacher of 14-to-19-year-old students*

By dedicating time to self-reflection on their learning process at the end of the classes, students started to adapt to the metacognition techniques and to identify the activities that help them understand a topic. Peer assessment, self-assessment and becoming an 'expert' are some of the strategies teachers implemented to help develop students' metacognition.

According to some students' feedback they felt that they were not learning anything in the AL format; some teachers choose to make students produce objects or documents (forms, checklists, etc.) so they could see what they had learned.

When it came to agreeing with the statement 'Reflecting on my own learning allows me to continue learning', the Turkish and Portuguese students agreed the most while the French and Polish students agreed the least, although the difference is slight. Also, students in the four cases agreed with the statement 'I oversee my own learning process', with a similar gap as in other questions between Turkish and Polish students, where the Turkish agree the most and the Polish the least.

Students were also invited to indicate how much they agreed with the following statements: 'Discussing ideas with my peers is a part of my learning process', 'Presenting and explaining my work to others helps me learn', and 'Mentoring other students helps me learn'. Students from the four case studies agreed similarly to these affirmations, showing no changes before and after the pilot phase. This may be explained by the short duration of the pilot phase.

The idea students have of their own learning process is related to the conceptions they have of assessment. When students were asked to say how much they agreed with the statement 'In my learning process, formative evaluation is as important as summative evaluation', students from all countries agree with this statement, with no change after the pilot phase. However, the Turkish students agree the most and the Polish ones the least.

The repeated difference between Polish and Turkish students' opinions can be explained by the age difference. The Turkish students were aged 11 to 14 while the students from pilot schools in Poland were aged 14 to 17. Thus, we can hypothesise that the critical attitude toward learning is higher in Polish students because they are older.

Teachers' pre- and post-test results from the four case studies confirm these results. They were asked to indicate the level of agreement with five statements in the test:

- 'Students' reflection on their own learning allows them to continue learning'
- 'Students presenting and explaining their work to others helps them learn'
- 'Students mentoring other students helps them learn'
- 'Creating or writing allows students to better understand a topic and use the information'

- 'It is important for the students' learning process to discuss ideas among themselves'

These statements had particularly high scores, showing the importance that teachers of the Novigado pilot phase assign to metacognition activities.

### 3.2.3 Perceived changes in learning spaces

Teachers in the four case studies were asked about the changes they observed in learning spaces after the Novigado pilot phase. We can distinguish four types of changes:

**Type 1 – Identification of how space is being used**, the identification of students' needs in terms of space and the modification of attitudes towards learning spaces. Some teachers rediscovered the right to explore their classroom spaces.

*TTK13: 'There was no improvement in creating learning spaces in the classrooms. Some conditions in the school do not allow this. However, while implementing the project, we realised that the library, laboratory, workshop and even the garden, which are less used at school, can be used for learning spaces when necessary.'*  
*Turkish teacher of 11-to-14-year-old students*

*TPL10: 'Also, I and my colleague with whom I've been teaching classes as part of the Novigado project, noticed that there was a need for classrooms to be made available, they should stay open until 4 or 5 p.m.'*  
*Polish teacher of 14-to-19-year-old students*

*TPT3: 'Now what I felt had changed, what gave me courage, was to come to the room and say: "Today we are going to mess up the room." I didn't even have the courage, especially for the colleagues who are teaching next door, for the colleagues who come next, for the staff who say that the room was messed up, and I with the excuse, if I can use the term, that I'm going to apply the Novigado scenarios. We messed up the rooms and it was fine.'*  
*Portuguese teacher of 11-to-17 year-old students*

**Type 2 – Teachers making students move more** around the classroom (stand up, change positions) and changing their seating arrangement and/or some furniture

*TPL7: 'Hi. Immediately after returning from our [Novigado] workshops, I rearranged students' desks and chairs in my classroom to resemble the desk arrangement which we used [during the workshop].'*  
*Polish teacher of 14-to-19-year-old students*

*TFR2: 'I have students who I received in an island seating arrangement whereas normally the tables are organised in a classic pattern; they, on the other hand, they were happy.'*  
*French teacher of 11-to-14-year-old students*

**Type 3 – Creation or use of new workspaces** different from the classroom within the school (corridors, outside space, etc.) as well as the creation of chillout or resting spaces for students.

*TPL6: 'I mean the steps officially lead to the main school entrance, but it's no longer used as all students enter the school using the backyard entrance. Our students*

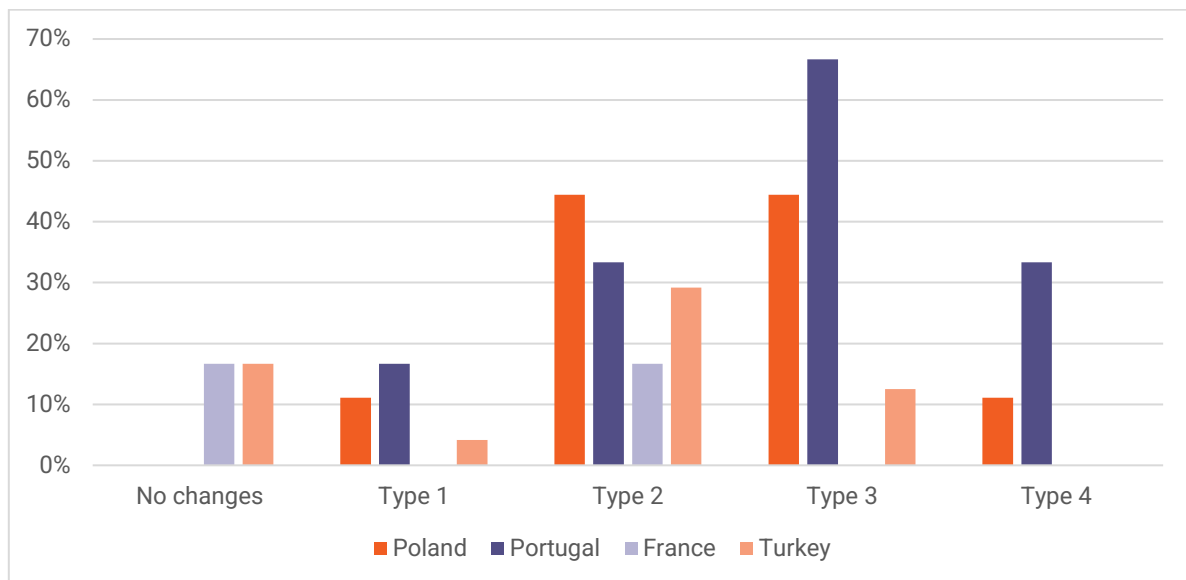
*like sitting on them. So they came up with the idea to put some rubber mats on those steps and turn them into a kind of a chillout place.'*  
Polish teacher of 14-to-19-year-old students

**Type 4 – Students getting involved in space design** or the engagement of spaces outside the school in the learning scenario.

*TPT8 and TPT7: 'In fact, one of the scenarios that we are still going to apply this first week has to do with leaving school. We have a swamp here right near the school and we are going to take advantage of this... this natural environment that we have here that is so rich to work with on students, so... we have a slightly different perspective with this project in relation to space, don't we? Not always be the classroom space.'*  
Portuguese teacher of 11-to-17-year-old students

Some other teachers in the Turkish and French cases reported having observed no changes in their context. This result corresponds more to the AL advanced schools than the starters.

Contrasting the information reported from teachers interviewed in each case, we identify the following distribution of types of changes by case (see Figure 7). Overall, the Novigado pilot phase encouraged teachers to make students move more around the learning spaces and rearrange the classroom space and furniture settings. We also observe that in the Portuguese and Polish cases teachers reported the creation of new learning spaces or spaces to rest within the school. Equally, students' involvement in space design was only observed in these two cases.



**Figure 7.** Type of space changes observed by teachers during the Novigado pilot phase.

Some difficulties were encountered in changing learning spaces such as a) outdated furniture (oversized) and digital equipment, b) the fact that table arrangements and major space modifications must be agreed with other teachers who use the classroom, and c) the small size of classrooms. Moreover, when a flexible learning space exists in school it is often used and must be reserved for a long time ahead.



### 3.2.3.1 TEACHERS' EXPERIENCES IN IMPLEMENTING AL ACTIVITIES AND USING FLEXIBLE LEARNING SPACES

All the Portuguese teachers interviewed, most of the Turkish (19/24) and Polish (6/9) teachers, and some of the French teachers (3/12) reported their experience in using flexible learning spaces and implementing AL activities. While some felt pleased, motivated and relaxed observing students working on their own and satisfied with having implemented AL activities, others felt more tired and anxious about placing more responsibility on students. Some teachers felt divided: they felt pleased but challenged by the format where teachers are 'not needed' for learning and there is no immediate feedback from students.

*TPL5: 'Suddenly I felt like I was no longer needed during this lesson. The students took over the initiative, I was only active at particular moments when I told them what they were supposed to do. They were searching for some things online on their own, e.g. info related to sleep, and they shared the things which they found.'*  
Polish teacher of 14-to-19-year-old students

One part of the teachers felt that AL made their job easier and the classes more controllable than the traditional teaching model. Half of the Turkish teachers felt that AL activities were efficient for student learning but also as a way of training teachers.

Some Turkish (9/24) and French (2/12) teachers described their experience of letting students move freely in the learning space. They observed excitement in students when using flexible learning spaces. The majority of teachers reported students moving freely while, after some discussion, they got to choose and organise their space to work.

*TTK23: 'It was both easy and difficult for me to allow the students to move freely in the space. It was easy because while moving freely in the space, the students felt comfortable and willing to learn. But sometimes, it was difficult to control them while they were moving freely.'*  
Turkish teacher of 11-to-14-year-old students

A French teacher noted that some students had difficulty in choosing their space to work and moving freely because of the persistence of the traditional model where students are not intended to move without the teacher's permission. In this regard, students were asked to indicate their level of agreement with three statements about learning zones, body position and furniture:

- 'The learning space has zones where I can be calm and concentrate'
- 'I feel that there is a particular place for me in the learning space'
- 'The learning space is equipped with easy to move furniture'

Students from all cases agreed with these statements in both the pre- and post-tests. However, the statement 'Within my school, I can freely choose the place that works best for doing my schoolwork' showed bigger gaps between cases. An evolution was observed in the Portuguese students' opinion regarding being free to choose where to work. By contrast, the Polish and French students agreed less in post-test than in pre-test. The students from Turkey agreed both in pre- and post-tests.



Teachers in all cases except the Portuguese agreed with the statements: 'The learning space allows me to be in different body positions' and 'The learning space furniture is comfortable and adapted to my activities'. However, there is a slight shift toward agreeing with the second statement in the Portuguese case. Our hypothesis is that in Portugal the traditional form of learning is more present; for instance it is usually said that students show their respect to teachers when they are 'correctly' seated. Also, many Novigado teachers from Portugal had to implement AL scenarios in classrooms with traditional settings because some schools do not yet have flexible learning spaces or the spaces are too few for teachers to be able to have regular lessons in flexible areas.

Amongst the teachers interviewed in the four cases, a large proportion of the Turkish teachers (17/24), half of the French teachers (6/12) and half of the Portuguese teachers (3/6) identified the **noise produced** by students as a characteristic of AL and sometimes a concern. Some teachers were worried about disturbing other classes, but most agreed that some noise is needed in AL activities for students to be able to work in groups or with peers, communicate and defend their own opinions, move, etc. Teachers stated that a noisier period of adaptation was needed for students to clarify their roles and tasks. There were teachers who offered students some cardboard to help them communicate their ideas and organise themselves. Most teachers warned students about noise using different strategies: talking to them, blowing a whistle, using an application to measure noise, raising hands with a signal, etc. The teachers encouraged them to choose leaders and built common rules with the class.

*TTK20: 'We dealt with the extra noise in this way, thinking that we had to provide silence when the majority made this gesture by using the raising their hands when there was a lot of noise, which we had determined with the students in the first lesson when there is extra noise.'*

*Turkish teacher of 11-to-14-year-old students*

Some other teachers observed that, after a period, students self-regulated by controlling the noise. Some teachers were even surprised at students' capacities to be active in their learning.

The results of the teachers' pre-and post-test let us better understand how teachers experience the use of learning spaces and if they are correctly equipped and adapted for them and their students. Teachers were asked to indicate their level of agreement with several statements. When taking a position for the statement 'The learning space has zones where students can focus on their work and be calm', teachers from all cases agreed, except the French who disagreed in the post-test ( $M=2.3$ ). This might be interpreted to mean that, contrary to what they thought before the pilot phase, teachers realised that not every student can work in AL settings with a place to focus.

Regarding the body position ('The learning space allows my students and myself to be in different body positions', teachers from all cases agreed before and after the pilot phase, except for teachers from the Polish and Portuguese cases, who disagreed more.

About furniture ('The learning space furniture is comfortable and adapted to my activities'), the French and Portuguese teachers considered they did not have comfortable and adapted learning spaces and furniture. Teachers in the Turkish and Polish cases changed their opinion about learning spaces. Before the pilot phase, they were satisfied but, after

experiencing AL scenarios, they considered their learning spaces not suited enough. On the other hand, teachers from all four cases agreed with the statements: 'I feel that there is a particular place for me in the learning space' and 'The learning space allows students to freely work and create'.

In the Polish case, teachers agreed with the statement 'The learning space is equipped with easy to move furniture' while in the French case there is a trend towards disagreeing and in the Turkish case towards agreeing. Teachers from Portugal disagree. It is important to note that in the Novigado pilot programme, schools have different levels of equipment; some of them already have flexible learning spaces while others plan to construct them. So, it seems normal to find big differences between the pre- and post-test, since teachers have a very big difference of opinion on how the furniture is adapted or not (high standard deviation).

### 3.2.3.2 DIGITAL TOOLS IN LEARNING SPACES

Students' and teachers' tests were also an opportunity to find out their opinions about the learning spaces that are supposed to be equipped to allow the smooth use of digital devices.

Students from the four cases agreed with the statements: 'In the learning space I can borrow and use digital devices' and 'The learning space has charging stations for devices'. On the other hand, the students from Turkey and France appeared to be better equipped with wireless access than students from Poland and Portugal. Students from these two cases disagree with the statement 'The learning space has wireless access everywhere'. There is certainly quite a variety of wireless access among schools, since the standard deviation is high ( $\sigma=1$ ) for all cases except the Turkish pre-test. Regarding the power outlets ('The learning space is equipped with enough power outlets for everybody'), the Polish and Portuguese students consider they do not have enough power outlets while French and Turkish students agree that they do. However, this aspect seems to vary inside a country, since standard deviation is high for the Turkish post-test and Portuguese pre-test.

The teachers' test results also showed that the learning spaces are not equally equipped in the project partner countries. While teachers from all countries agree that 'In the learning space students can borrow and use digital devices' the calculated standard deviation shows big differences of opinions in the group of French and Turkish teachers. In the French case the teachers are not satisfied with the quality of wireless access, the provision of charging stations for devices or the number of power outlets for students. In the Turkish case, the teachers also point out the lack of wireless access in the learning spaces and in the Portuguese case the power outlets. In the Polish case, no missing equipment was identified.

### 3.2.4 Perceived changes in the teacher-student relationship

The students' test results show high levels of freedom of speech and trust from students to teachers participating in Novigado. Students from the four case studies agreed with the statement 'I can express my disagreement to my teacher'. This is often associated with a more horizontal relationship between teacher and student. In this sense, when it comes to indicating their level of agreement with the statement 'Teachers are the only source of

expertise', students from the Polish, Portuguese and French cases clearly disagree. Turkish students disagree the least compared to students in other cases. This confirms another aspect of a more horizontal student-teacher relationship where the teacher is seen as one among other sources of knowledge.

For their part, some teachers interviewed in the French (3/12), Portuguese (1/6) and Turkish (1/24) cases reported changes in the relationship between teachers and students. They reported greater closeness and a calmer and more trusting relationship between teachers and students. For instance, spontaneously, some students got involved and gave their opinion about the learning scenario conception.

*TPT8 and TPT7: 'Collaboration is very different. We started to apply scenarios before applying the scenario that we presented on the platform and we noticed their collaboration... they already want to know what we are going to do. They want to know the objectives, the strategies...'*

*Portuguese teachers of 11-to-17 year-old students*

Other teachers reported the existence of student tutors and teacher-student co-intervention in class:

*TFR3: 'I have a student who comes regularly during his time... weekly, he has some study hours when... he comes when I have classes with another group, and he always comes with me [to help], then it's a teacher-student co-intervention. And that's super interesting.'*

*French teacher of 11-to-14-year-old students*

## 3.3 Conception and implementation of AL scenarios

### 3.3.1 AL scenario utility and efficiency

More than half (13/24) of teachers from the Turkish case and almost half (5/12) of the French teachers interviewed gave their opinion on AL scenario efficiency and utility. Most of them considered that having prepared a scenario was useful to their practice. Some of them considered that having AL scenarios helped them make their practice more efficient. Some teachers reported that conceiving this scenario increased their self-confidence to guide the activity and allowed them to recycle a part of the whole scenario afterwards. Teachers explained that their self-confidence grows when students accept the proposed activities; that was the case during the pilot phase.

### 3.3.2 Experience of scenario creation and preparation time

Half of the French teachers (6/12), a third of Polish teachers (3/9) and a quarter of Turkish teachers (6/24) reported their experience creating AL scenarios. Some of them pointed out first the amount of work and the challenge involved in preparing an AL scenario: thinking ahead of the assessment, preparing the possible answers to students' questions and difficulties, the complexity of working with other teachers, creating a scenario that could be adapted to any discipline, class and level, preparing the documents and other materials for students, and organising the activity. Secondly, they underlined the complexity of working in transdisciplinary settings. Thirdly, they mentioned the complexity of creating

balanced student groups in terms of levels and profiles. Some others commented about the difficulty of keeping a positive tension for students to work. Some of them were not used to and did not like creating learning scenarios.

*TPL8: 'I am not used to creating my own scenarios, I just jot down lesson goals and methods that I choose to use, and later the lesson follows its own path. As I said, I had already taught similar lessons before, but now I just honed it better. So I had this general idea, but it was very hard for me to build it up from the small "building blocks" that you suggested. How to break it down into those elements, as the Scenario Tool directs us to include some elements that should be brought into the lesson.'*

*Polish teacher of 14-to-19-year-old students*

When asked about the importance of the learning scenario in the guiding role of the teacher, teachers from the four cases reported their experiences. Most of them agreed that guidance should be designed within the preparation phase and nothing more; for them, a well-prepared scenario gives students a framework to work in freedom as needed in AL. To a lesser extent, some teachers considered that traditional guidance is still needed in some groups.

### 3.3.3 Implementation difficulties

About scenario implementation, teachers indicated their major difficulties, in order: schools' outdated furniture and digital equipment, large groups and short sessions, the need for students to adapt to the active model (etiquette during discussions, reticence, confusion between relaxing and work time), curriculum, improvising to deal with problems and absent students, find the time slot to work in transdisciplinary mode, and students' use of digital devices for personal purposes.

### 3.3.4 Scenario adaptations

Even when planned in detail, learning scenarios are organic and can evolve. Some teachers explained how interesting it was to involve students in improving the scenario. They dedicate some time after the scenario to getting the students' opinions on the activities. After this, they modified scenarios where students could not understand the content, changed assessment criteria and rethought the orders of activities according to the group dynamics. In a general way, teachers simplified scenarios and made some adjustments.

The importance of considering students' opinions on how to make learning better was also shown in teachers' tests results. Teachers from the Turkish, Portuguese and French cases agreed strongly with the statement 'Students have an influence on what they learn and how they learn'. However, teachers from the Polish case only agreed. After the pilot phase, this position decreased a little ( $M=3$  in pre-test and 2.7 in post-test, standard deviation was normal).

## 3.4 Teachers' view of the AL model

Half of the French teachers (6/12) and almost all the Turkish teachers (22/24) mentioned the benefits they have observed from implementing AL in their teaching practice. A common thread was that AL scenarios allowed students to engage in the activity or in

learning in the long term. However, teachers focused differently on the situations and aspects that get students engaged in the learning process. Almost half of these teachers (13/28) considered that the opportunity for students to produce and create in the class was one of the benefits. Feeling productive improves students' self-confidence, self-discovery and motivation, which is particularly important for permanent learning and the development of learning-to-learn skills for all students but especially for isolated students. On this point, students were asked to say how much they agree with the statement 'Creating or writing allows me to better understand a topic and use the information' in the pre-and post-tests. Out of the four case studies, the Turkish and Portuguese students were those who most agree with the value of producing or creating for learning.

Another half of the teachers (13/28) think that because of the willingness to learn that students develop during AL scenarios, its main benefit is to improve students' self-regulation in the long term. A proportion of the teachers (9/28) consider that AL triggers the motivation and attention of students. Another group (9/28) considers that AL allows students to acquire permanent learning. Some teachers (6/28) think that the opportunity to integrate students who are less suited to the traditional school model, who are shy, hard to discipline or with different abilities, is an important benefit of AL. Some other teachers (6/28) consider that AL allows students to discover content using a variety of activities. Soft skills, transdisciplinary focus, smoothly flowing and fun lessons and collaboration are other benefits of AL observed by teachers.

To a lesser extent, teachers consider that AL allows them to plan classes ahead, make more time for exercises, cooperate with other teachers, get feedback from students about the class and what they learned, and benefit from peers' and students' observations.

The view that teachers have of active learning also includes aspects that might be obstacles to its implementation if the school culture is completely foreign to AL.

In order of importance:

- 1) Teachers mentioned the difficulty of getting students to change their mindset from the traditional model to AL. For instance, they observe that some students are not as autonomous working in class as AL requires. They also observe the need for students to have written physical material to study, the teacher's version, not material that they might have produced during learning scenarios. Conventional assessment through tests was also considered not to allow students to think of learning in terms of searching and working in contrast to memorising and repeating.
- 2) Noise during class time is considered a difficulty.
- 3) Teachers observe not having AL pedagogical resources in all courses like the scientific ones.
- 4) Getting learning time slots suited to implementing interdisciplinary learning scenarios: longer slots, coordinated among disciplines.
- 5) Crowded curricula are also an obstacle to implementing longer scenarios where students have many activities.

6) Finally, teachers mentioned outdated equipment in their schools.

## 3.5 Teacher's opinions on the Novigado project

### 3.5.1 General opinion

Some teachers from the Portuguese (5/6), French (7/12), Turkish (10/24) and Polish (3/9) cases gave their opinion about the Novigado pilot phase. More than half of the teachers of the four cases, most of them Turkish, agreed that experiencing the pilot phase was useful to start reflecting on pedagogical changes and experimenting with new pedagogical practices. Almost the same number of teachers, most of them French and Polish, agreed that Novigado was useful to boost their school's dynamics around AL by sharing ideas with other schools and creating workgroups. For other teachers, the contribution of Novigado was mostly the reinforcement of interdisciplinary work among teachers, the chance for teachers to dedicate time to working on AL and exchanging with colleagues. Some others felt that they were able to improve their AL knowledge and felt 'validated' to implement AL activities.

### 3.5.2 Relationships among teachers in schools

The Novigado project encouraged teachers to work together. Almost all the Turkish (20/24) and Portuguese (5/6) teachers interviewed, and half of the French teachers (6/12), expressed their opinions about a presumed change in teachers' relationships after the Novigado project. Most of them confirmed that relationships have evolved following the creation of scenarios together and making decisions to make them evolve. The project has also fostered collaboration among teachers from different disciplines. Moreover, the Novigado pilot teachers' group helped other teachers to undertake AL activities:

*TTK5: 'After teaching our lessons with learning scenarios, their perspective on innovative methods changed and they were convinced that they were actually able to achieve innovative learning in our students.'*

*Turkish teacher of 11-to-14-year-old students*

The improvement of the relationship among teachers produced some benefits for students such as receiving more positive feedback, relevance of 21st-century skills within the lessons, getting two different perspectives on their work, etc.

The relevance of teachers' collaboration in the Novigado project comes down to the opportunity to observe other teachers' classes in open settings. Finally, exchanging ideas and strategies among teachers was considered important to reassure teachers about their own practices.

### 3.5.3 School dynamics on innovation

When asking teachers about the observed changes in the innovation culture of the school, only some Turkish teachers (9/24) reported having observed changes. Teachers from other cases could not refer to cultural changes in what happened after the Novigado project. They talk about 'reinforcement' in the innovation culture, heightened awareness of other methodologies or a teacher's self-questioning period about their own teaching practices.



### 3.5.4 Novigado project tools

During the project, teachers were asked to use some tools. While the majority used them, a few of them reported not filling in or following any of the project tools.

Most of the teachers in all four cases identify **peer observation** as an interesting practice to adopt. Some other teachers reported a community feeling among teachers and students while observing or being observed. Peer observation is not an unknown practice, but teachers do not do it regularly because of time and organisation constraints. Being part of the project gave them the impetus and forced them to really observe their colleagues. The Novigado 'label' also gave them the time, the right and the organisation to observe and be observed. Teachers' peer observation helped other teachers to feel validated about their AL activities. The guidelines about how to conduct an observation were most appreciated. However, some points were mentioned up: repetitions, a question about the positive and negative side of the scenarios was missing and also the students' growth, the surprising aspects for the observer, and the contrast between the learning scenario and its implementation. Some others think that having a conversation among teachers could be more helpful than the observation guide.

*TFR3: 'It's interesting for students because they see that it is teamwork, and they're not used to it. For us too, it is rewarding because it allows us to have... there is one student that is more in the action and another student that is more in the observation and, in the end, they create a dialogue that is interesting. The fact of taking a glance at what we do, we do it alone all the time. It's also good to have some reflection moments with all [teachers] together. In our job, we never do it... people are lonely in their classrooms and the only feedback they get is from their students.'*

*French teacher of 11-to-14-year-old students*

The **teacher's journal** was considered helpful for some teachers, mostly Turkish. They used it to reflect on how classes went and what improvements were needed. For others, this tool was considered long, and it was completely neglected.

*TTK17: 'The teacher's journal made me see the work I do concretely. It is like a mirror and reflects the things I cannot see during the lesson.'*

*Turkish teacher of 11-to-14-year-old students*

For some teachers, mostly French, the **pre- and post-tests** were considered complex and long for students 10 to 11 years old.

On the other hand, **guidelines** were considered very helpful.

*TPL6: 'Sometimes I have an idea and then, when I read your Guidelines book I learn that this idea has already got its name, and from there I can go somewhere else. I feel like a "pro" thanks to that, and when you feel like a "pro", you feel confident on this stage. So I think I will keep it with me and it will come in handy for me as a person, as a human being.'*

*Polish teacher of 14-to-19-year-old students*

While it was useful for some teachers, most comments reported difficulties in the use of the **Scenario Tool**: to add an activity: the text disappears. For others, the application was

not as intuitive as they expected it to be. Other teachers thought that the tool would improve with some collaborative features.

### **3.5.5 Next AL projects in participant schools**

When asking teachers from the four cases how they envisioned the next steps after Novigado, they first thought about training other teachers in AL and fostering the adoption of methodologies within their schools by creating teachers' workgroups. Secondly, they thought of creating new learning spaces and relaxing spaces within their school buildings. Thirdly, they thought about continuing to implement AL scenarios. Finally, they envisaged creating and participating in other AL projects and starting to use different learning spaces within their schools, other than classrooms.



## 4 Conclusion

The Novigado project gave an opportunity to teachers who would not naturally dare to 'mess up the room', to experiment, to make mistakes without feeling guilty or pressured. For those with some experience in AL, the guidance of Novigado presented a good opportunity to reactivate teachers' groups that started questioning the traditional teacher-centred model and implementing ambitious interdisciplinary scenarios.

Novigado allowed all participant teachers to increase their awareness of the importance of learning spaces that enable students to move during classes and the advantages of letting students create their own working spaces. It enabled teachers to reflect on further development of their pedagogical practices and share experiences of implementing learning scenarios.

The Novigado teachers acknowledged the intertwining of cultural and institutional factors that inhibit changes in teaching practices. They realised how the common culture of traditional teaching makes it difficult for them and for students to change. On the one hand, the teachers became aware of their difficulties in changing their teaching posture, creating a more horizontal relationship with students, allowing students to work at their own pace and produce noise, and not being side-to-side with students all the time. On the other hand, teachers realised the difficulties of students changing spaces and moving, deciding on strategies and organising their work.

# 5 Recommendations

The analysis of the data collected during and after the Novigado pilot phase allows some recommendations to be formulated for teachers and schools who are interested in implementing AL and using flexible learning spaces and digital tools.

## 5.1 Adaptation period

In the transition from a teacher-centred to the student-centred model of AL, it is important to allow an adaptation period for students and teachers, to facilitate the mindset change and move to openness. Changing from one model to another takes effort and practice.

On the one hand, beside the pedagogical model itself, teachers must deal with administrative work and follow explicit and implicit institutional rules that may inhibit a positive attitude towards change. A favourable institutional context makes it easier for teachers to embrace experimenting with scenarios and taking risks. Teachers must accept that some learning scenarios could be unsuccessful but that they will still be able to learn something from them.

Some difficulties were observed for teachers in the transition from the traditional model to AL:

- Being afraid of losing the time to prepare students for the next level or exam.
- Needing to control students' work.
- Getting disturbed or uncomfortable with the noise produced by students in active settings.
- Not knowing how to assess students with AL settings and being confronted with problems such as students cheating in exams, being questioned on the fairness of product-oriented and self-evaluation assessment, etc.
- Not being open to sharing their teaching practice with colleagues and co-hosting learning scenarios.
- Not being comfortable carrying out interdisciplinary scenarios.

On the other hand, students participating in an AL experimentation need to be aware of why and how they are involved in the project. This means understanding that the main objective of the learning scenario is actual learning and not playtime, however relaxed it feels. Ideally, teachers must explain to students the differences between the traditional model and the AL model, so it is clear from the beginning how the pedagogical contract is proposed to be changed in the experimentation. Like teachers, students are attached to the traditional teaching model. For instance, teachers have observed students having difficulties in:

- Changing their seating space in the classroom or 'giving up' a designated space in the class, moving freely in the classroom and deciding on a place to work.
- Working without the continuous guidance of the teacher.
- Not needing to learn content by heart to feel they were learning.

Thus, it is important to guide students to reflect on the role of students and what it takes for them to learn.

Students must be aware of basic group-working communication rules such as taking turns to speak, body posture, etc. It is useful for students to be autonomous in searching for information and organising their work. Ideally, students develop advanced skills such as building up and using arguments.

Students have problems adapting to the AL model mainly because a) they are not able to imagine how it will help them to succeed in the national tests, b) they have problems interacting with other students or teachers in the class, they do not feel comfortable or they are shy, or c) they do not know how to organise their work and what makes them learn. Thus, it is important for all students to participate after class in a metacognition exercise and to give feedback to the teacher about the learning scenario that has been run.

## 5.2 Infrastructure conditions

According to the teachers interviewed and also the opinions expressed in teacher pre- and post-tests, the minimum infrastructure conditions needed to implement AL activities are:

1. Spaces must be designed to be flexible and well-lit. Furniture must allow students to move it easily with the minimum possible noise. Teachers must have space to circulate among students working in the group configuration.
2. Digital devices must be in good condition for students to work with and with easy access to the Internet. Microphones, headphones, video projector, smartboards and software are needed.
3. Material such as small boards or cards must be provided. Teachers must be encouraged to create their own objects adapted to their classes. Some examples were identified in the pilot phase: a token to talk, a clock with the modalities to work, etc.

Teachers must feel that they have the right to 'mess up' the learning spaces, even if there are colleagues that will use them after. The flexible space design must allow for easy rearrangement of spaces so students can be autonomous, teachers can be efficient and cleaning employees do not have extra work. All details must be considered in the space design, i.e. where to put their backpacks to avoid them interfering with objects when changing settings. Ideally, all learning spaces should be flexible to avoid choosing or reserving the room.

## 5.3 Student and teachers' digital skills and digital tool use

Students must have some basic information-searching skills and basic skills to use digital devices. Getting quality information involves an extra skill that can be developed in the first AL sessions.

Teachers must have basic digital skills for teaching to be able to use and guide students through the AL scenarios.

Digital tools and devices need not to be used systematically in the AL settings.

## 5.4 Longer learning slots

Teachers of all four cases highlighted the need to have longer learning sessions with students so as to be able to implement AL activities.

*TPL8: 'If I wanted to cover the same content in a transmissional model, it would probably take me no more than 45 minutes. But if the student supposed to be the researcher, if it is the student who should come up with something on his/her own, act in a multisensory way, create an actual product that will last even after the lesson has finished, they must first start by gathering some materials and later present them in the classroom, carry out some kind of evaluation. It definitely takes slightly more time... maybe even not "slightly", but twice or three times more time compared with the transmissional method. Of course there is the question of the effect, as I hope [what we did] will stay in their heads longer (...).'*

*Polish teacher of 14-to-19-year-old students*

This reflection is an illustration of what teachers recommend for freeing time in the timetable so students can develop transversal skills that will help them in higher education. Some recommended 90-minute sessions, others three-hour sessions. Longer slots of time will also allow for transdisciplinary activities with two or three teachers at a time.

## 5.5 Group size

The four cases studied agreed on the importance of designing activities according to the student group size and, if possible, reducing the class size. The ideal group size is linked to the classroom size and the level of teaching. Most Turkish teachers agreed that any group size is possible for an AL setting. However, some of them preferred no more than 20 students. If more than 20, they still recommend a limit of 25; they pointed out that with bigger groups learning will not be as effective as in a smaller one. Likewise, French teachers of students aged 11 to 14 recommend having between 22 and 28 students to be able to work in AL settings. French teachers of students aged 15 to 18 recommend having no more than 25 students in the class.

## 5.6 Curriculum

National curricula are designed to foster the development of specific skills and knowledge equally in all students. Curriculum reforms can have notorious effects on students' learning and they are not always favourable to the AL model. Some Polish teachers spontaneously compared students' results between 8-year-long-primary-school graduates and middle-school graduates. Many soft skills were missing, and teachers especially pointed out the lack of learning autonomy that the first group showed and the limited experience of working in groups.

Teachers trying out AL scenarios during Novigado reported being aware and concerned that they would not be able to 'cover' the whole curriculum because of the time AL needs. Instead, these teachers preferred to help students develop soft skills and acquire knowledge using AL. They think that 'learning to learn' is more important than content.

Despite all this, national exams (i.e. Matura in Poland, Brevet and Bac in France, etc.) are needed for students to enter higher education institutions. Some teachers reported

students being worried about taking these tests and not being able to study in a top-down model, so they could absorb and memorise content for the national exam. For these students, the AL model is not as effective as the traditional one for succeeding in the exams.

Ideal curricular conditions for AL implementation would consider interdisciplinary connections, a shorter curriculum prioritising skills and permanent learning rather than content and marks.

## 5.7 Dosage of AL

When implementing AL, it is important to have a variety of activities rather than adopting a single pedagogical model. The ideal is to have a balance, with not too frequent, not too exceptional AL activities. The novelty effect in learning activities is important and it must go together with the type of content students must acquire.

## 5.8 Teacher training

Schools implementing AL need to be guided by an external body so teachers can easily get involved without systematically passing through their school management. Being under the umbrella of an experimental project might help them to gain confidence and sense of security to change to the AL model.

Teachers must first increase their awareness of the use of flexible learning spaces in schools that create one. Later, teachers must be invited to implement scenarios coached by other schoolteachers. Implementation of scenarios is easier when an AL school dynamic has already been created; work in a teacher group is important. However, teachers participating in these innovation processes must not be forced by their school management. Teachers must be open and willing to experiment and change their practice. However, the allocation of extra time to work with AL can be encouraging for teachers.

The creation of a voluntary pilot group by the school is recommended. This group will be trained and experiment with AL scenarios while helping the teaching community in schools to become curious about AL. Showing the granularity of AL scenarios can be useful for reluctant teachers to imagine their scenarios.

The pilot group activity must have continuity, so teachers and students take AL seriously, improve their attitude toward AL and achieve long-term results. It is important to share with the school community the good practices that came from this experimentation.

# 6 Annex 1

## TEACHER'S PRE-TEST & POST-TEST

This questionnaire is proposed to you in the frame of the Novigado project, financed by the Erasmus+ programme of the European Union. The purpose of the form is to identify how the Novigado activities have contributed or not to a broader AL culture in schools. The information gathered is not intended to evaluate you or what you think. Personal data are collected only to associate your opinion with your context. In any case your name will not be associated with the project results.

The form is the sole responsibility of the project consortium and does not represent the opinion of the European Commission (EC), and the EC is not responsible for any use that might be made of the information therein.

By filling in the form, you agree with the [data collection and processing](#) as follows:

- Any personal data collected is accessible only by the designated staff of the Novigado partner organisations and of the Erasmus+ National Agency in Poland for the purpose that is indicated above.
- Any personal data will be kept for a maximum of 6 years after the completion of the project.
- For any questions regarding how your data are handled, or to exercise your right to correction, erasure or portability of your data or if you just wish to know what personal data we hold on you, please contact [dpo@reseau-canope.fr](mailto:dpo@reseau-canope.fr)

If you have any questions about the Novigado project or want to know more about the school pilot activities, please contact us at: email address of contact person

Should you have any complaints regarding data protection, you can contact your [National Data Protection Authority](#).

[mandatory tick box]

- I agree with the above-mentioned legal basis for the processing of my personal data under the GDPR.

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### Please complete the following information.

Teacher's name (or invent a nickname if you prefer):

Teaching level(s):

School name:

Country: France, Portugal, Turkey, Poland

1. Please check, honestly and freely, the single response that most represents what you think about the following statements:

*Disagree strongly*

*disagree*

*agree*

*agree strongly*

*No response*

- At school students can freely choose the place to do their schoolwork
- Creating or writing allows students to better understand a topic and use the information
- It is important for the students' learning process to discuss ideas among themselves.
- Students have an influence on what they learn and how they learn
- Students' reflection on their own learning allows them to continue learning
- Students presenting and explaining their work to others helps them learn
- Students can express their disagreement on what I say
- Students mentoring other students helps them learn
- Teachers are the only source of expertise
- When designing learning activities, I consider my students' interests in and out of school
- Formative evaluation is as important as summative evaluation in the students' learning process
- My main role as a teacher is to explain things to my students
- My role as a teacher is to motivate students' discovery while supporting them

2. Please answer the following questions about the learning space you currently use by checking the single response that most represents your opinion.

[Scale: *Disagree strongly, disagree, agree, agree strongly, No response*]

- The learning space has zones where students can focus on their work and be calm
- The learning space allows my students and myself to be in different body positions
- The learning space furniture is comfortable and adapted to my activities
- I feel that there is a particular place for me in the learning space
- In the learning space students can borrow and use digital devices
- The learning space allows students to freely work and create
- The learning space is equipped with easy to move furniture
- The learning space has wireless access everywhere
- The learning space has charging stations for devices
- The learning space is equipped with enough power outlets for every student

3. Which statement best describes your **digital competences to prepare classes and teach?**



- I can often show others (teachers or students) how to use digital devices and tools
  - I am autonomous in the use of digital devices and tools almost all the time
  - Most of the time I need guidance to use digital devices and tools
4. Which statement **best describes your digital competences for personal purposes** (e.g. information, communication and entertainment)?
- a. I can often show others how to use digital devices and tools
  - b. I am autonomous in the use of digital devices and tools almost all the time
  - c. Most of the time I need guidance to use digital devices and tools
5. What virtual learning spaces and tools do you use for teaching (preparing or delivering class) and how often do you use them?

*On a daily basis*

*once or twice a week*

*twice a month*

*occasionally*

*never*

*does not apply*

- Virtual learning environment (VLE)
- Video conferencing system (Teams, Zoom, Meet, Webex, etc.)
- Internet forum and/or blog
- Group chat system (Messenger, WhatsApp, etc.)
- File-sharing system (SharePoint, Google Drive, Dropbox, etc.)
- Creation and editing tools (audio, video, voice, image editing, online tools)
- Interactive quiz tools (Wooclap, Mentimeter, etc.)
- Exercise tools
- Assessment tools
- Presentation tools (Power Point, Keynote, Prezi, etc.)
- Information research tools (browser, dictionary, encyclopedia, etc.)
- Classroom management tools
- Other

## 7 Annex 2

### STUDENT'S PRE-TEST & POST-TEST

This questionnaire is proposed to you in the frame of the Novigado project, financed by the Erasmus+ programme of the European Union. The purpose of the form is to identify how the Novigado activities have contributed or not to a broader active learning culture in schools. The information gathered is not intended to evaluate you or what you think. Personal data are collected only to associate your opinion with your context. In any case your name will not be associated with the project results.

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If you have any questions about the Novigado project or want to know more about the school pilot activities, please contact us at: email address of contact person

Should you have any complaints regarding data protection, you can contact your [National Data Protection Authority](#).

mandatory tick box

- I agree with the above-mentioned legal basis for the processing of my personal data under the GDPR.

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#### **Please complete the following information.**

Student's name:

Student's grade:

Name of the teacher who invited you to answer this questionnaire:

School name:

Country: France, Portugal, Turkey, Poland

1. Please check, honestly and freely, the single response that best represents what you think about the following statements regarding your school and your teachers in general:

*Disagree strongly*

*disagree*

*agree*

*agree strongly*

*No response*

- At school I use a wide range of activities and resources to learn
- Creating or writing allows me to better understand a topic and use the information
- Discussing ideas with my peers is a part of my learning process
- I can have a voice in what I learn and how I learn
- Reflecting on my own learning allows me to continue learning
- Presenting and explaining my work to others helps me learn
- I can express my disagreement to my teacher
- Mentoring other students helps me learn
- I oversee my own learning process
- Within my school, I can freely choose the place that works best for doing my schoolwork
- I can easily relate what I learn at school to my daily life activities
- Teachers are the only source of expertise
- My teacher knows and considers my interests when preparing the learning activities
- In my learning process, formative evaluation is as important as summative evaluation

2. Please answer the following questions about the learning space you currently use by checking the single response that most represents your opinion.

*[Scale: Disagree strongly, disagree, agree, agree strongly, No response]*

- The learning space has zones where I can be calm and concentrate
- The learning space allows me to be in different body positions
- The learning space furniture is comfortable and adapted to my activities
- I feel that there is a particular place for me in the learning space
- In the learning space I can borrow and use digital devices
- The learning space allows me to freely work and create
- The learning space is equipped with easy to move furniture
- The learning space has wireless access everywhere
- The learning space has charging stations for devices
- The learning space is equipped with enough power outlets for everybody

3. Which statement best describes your digital competences for learning purposes?

- I can often show others how to use digital devices and tools
- I am autonomous in the use of digital devices and tools almost all the time
- I need guidance to use digital devices and tools most of the time

4. Which statement best describes your digital competences for communication with peers and entertainment purposes?
- I can often show others how to use digital devices and tools
  - I am autonomous in the use of digital devices and tools almost all the time
  - I need guidance to use digital devices and tools most of the time
5. What virtual learning spaces and tools do you use in class and how often do you use them?

*On a daily basis*

*once or twice a week*

*twice a month*

*occasionally*

*never*

*does not apply*

- Virtual learning environment
- Video conferencing system (Teams, Zoom, Meet, Webex, etc.)
- Internet forum or blog
- Group chat system (Messenger, WhatsApp, etc.)
- File-sharing system (SharePoint, Google Drive, Dropbox, etc.)
- Creation and editing tools (audio, video, voice, image editing, online tools)
- Interactive quiz tools (Wooclap, Mentimeter, etc.)
- Exercise tools
- Assessment tools
- Presentation tools (PowerPoint, Keynote, Prezi, etc.)
- Information research tools (browser, dictionary, encyclopedia, etc.)
- Other

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