Kids in Clouds project

Intellectual Output 3: Pilot 1 (educational materials for teachers) and recommendations on the implementation

Kids in Clouds
2020-1-HR01-KA201-077826

Co-funded by the
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Document Reference

Project Title:	**Kids in Clouds**
Project Number:	2020-1-HR01-KA201-077826
Project URL:	www.kidsinclouds.eu
Output:	Intellectual Output 3
Leading Organisation:	Secondary School St. St. Cyril and Methodius
Output Start Date:	1st November 2021
Output End Date:	31st January 2022
Output Title:	Pilot 1 (educational materials for teachers) and recommendations on the implementation
Output Type:	Methodologies / guidelines – Co-operation processes and methodologies
Output Delivery Date:	January 2022
Status:	Final

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Introduction

In order to integrate previously created educational materials for teachers (Intellectual Output 2) into the learning environments of project partners, methodology for conducting the pilot process was established. Furthermore, pilots were organized and ran in schools which are partners of the *Kids in Clouds* project. Algebra was responsible for establishing evaluation tools and evaluating the pilot process.

As a final result, report on Intellectual Output 3 of the *Kids in Clouds* project contains:

a) insights gained during the process of piloting in the following schools:
- Secondary School St. St. Cyril and Methodius (Smolyan, Bulgaria)
- Primary School Horvati (Zagreb, Croatia)
- College Jules Reydellet (Reunion France)
- Ludina Primary School (Velika Ludina, Croatia).

b) the results of the pilot process - evaluation of the pilot efficiency and success-rate of the produced digital educational materials for teachers

c) recommendations for teachers, based on the best practices of implementation of the cloud-computing in teaching.

1. The aim and objective of the Kids in Clouds project

Before drafting the *Kids in Clouds* project, a desktop research was conducted. Based on this research and trends showing increase in usage of the cloud-based tools, it was concluded that the cloud-based services are growing rapidly in the global and European economy. With the rise of 5G technology not only storage but also all data processing and applicative services will move to the cloud environment. Based on our research, this change is anticipated to come in the next 10 years. The move towards cloud-based environment will tremendously impact our work environments, as well as in general the way we use ICT solutions on a daily basis. We have established that switching from working in on-premise to cloud-based environment creates significant obstacles for users, as it requires them to relate to high-tech solutions in a different way.

This is why interdisciplinary project *Kids in Clouds* aims to introduce children with cloud-based services as early as the first grade of the primary school. Its main objective is to deliver well-rounded, useful and transferable educational programs in cloud computing through development of educational modules for teachers and students. This is a project designed to meet challenges of the modern education system and challenging market needs, by providing an awareness-raising, holistic and flexible education in cloud computing.

The aim of this project is to introduce cloud-based environment to children at the beginning of their primary school learning path. At that point, children do not differentiate on-premise from cloud-based content and services – for them, these are simply tools to get things done. Sooner they encounter cloud-based services, easier it is for them to learn how to interact with them. According to our research, it was concluded that it is hugely important to teach children to get acquainted and comfortable in the cloud-based eco-system as early as possible, as this will be the environment they will live and work in already ten years from now.

2. Previous project results and accomplishments

2.1. Gap analysis: the use of cloud-based services in schools today vs. the possibilities of the technology in general

In order to investigate the use of cloud-based services in schools today, project partners created and distributed an on-line questionnaire for teachers, as part of Intellectual Output 1. For the purpose of creating the questionnaire of a high quality and international usability, project partners conducted secondary and primary research and gained insights into teachers' attitudes towards using digital technology and cloud-based tools in teaching. Results of the questionnaire served project partners as conclusions about today's usage of cloud-based services in schools and these results were compared with the possibilities of the technology in general in order to decide on further project activities.

Results of the on-line questionnaire filled in by 373 teachers from different European countries show that teachers assess their digital skills as above average, that teachers often use particular digital tools in teaching, that they are inclined to acquire new knowledge about digital tools and that they partially recognize the importance of student-centered learning enabled by using digital tools. Furthermore, results of the questionnaire showed that there are many free cloud-based tools that primary school teachers are not familiar with; therefore, they do not use them very often or they do not use them at all. However, teachers pointed out that they are not skilled in creating their own digital educational materials even though they like to use them, that they are not inclined to pay a license for a certain digital tool, that students often do not have IT equipment in classrooms for independent usage and that they and their students rarely use many available digital tools in the cloud.

In conclusion, gap analysis showed that teachers who participated in the questionnaire are aware of the benefits of using cloud-based technology and digital tools in teaching but they still sometimes hesitate to use particular cloud-based tools and create their own digital educational materials despite the possibilities of the technology in general.

2.2. Digital educational materials for teachers

Following the results of the gap analysis, project partners created digital educational materials for teachers, as part of Intellectual Output 2. Since it was concluded that there is a great need for empowering teachers for creating their own digital materials, project partners created digital educational materials which can help teachers to learn how to use cloud-based tools in order to create their own digital materials. Materials were created in a form of video tutorials that show how to use free online cloud-based tools for the purpose of creating interactive presentations, graphics, quizzes, games and similar content as well as using cloud-based tools in teaching.

Materials are available in three different languages – Bulgarian, Croatian and French. In total, there are more than 170 educational materials available in an open-source online repository which allows previewing and downloading materials on the official project website – https://www.kidsinclouds.eu/digital-educational-materials-for-teachers/ .Materials for teachers are prepared in a way that ensures their wide usage - namely, teachers of all subjects can use them regardless of their previous knowledge about the topic. These materials can help teachers to master the use of cloud tools and empower them to help students with mastering it too. Moreover, the aim was to test the materials in the next phase of the project – during the Intellectual Output 3.

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3. Pilot aim and methodology

3.1. The aim of the pilot process

The aim of the pilot process was to test the digital learning materials for teachers developed in the Intellectual Output 2 in encounters with the different target groups (teachers of different subjects and levels of teaching) and in different local, regional and national environments. The data about the effectiveness of learning during the pilot process was obtained.

After the pilot process and based on the obtained data, the following is established:

a) the results of the pilot process - evaluation of the pilot efficiency and success-rate of the produced digital educational materials for teachers

b) recommendations for teachers, based on the best practices of implementation of the cloud-computing in teaching.

The main objective of the pilot process is twofold. On the one hand, it will support partners in their efforts in planning, implementing and evaluating innovative and efficient approaches in learning about the cloud. On the other hand, it will contribute to the popularization of the cloud as a tool among the wider audience of educators.

3.2. Institutions in which the pilot process was implemented

The pilot process was implemented in the following institutions:

- Secondary School St. St. Cyril and Methodius (Smolyan, Bulgaria)
- Primary School Horvati (Zagreb, Croatia)
- College Jules Reydellet (Reunion France)
- Ludina Primary School (Velika Ludina, Croatia).

Project partners mentioned above participated actively in the Intellectual Output 3 by running the pilot process in their own institutions. Algebra created the questionnaires for the evaluation of the results of the pilot process, supported other project partners, participated in the organizational activities as well as in analyzing the results and creating the final report.

3.3. Target group of the pilot process

Teachers in the project partners' institutions are the ones who participated in the pilot process and tested created digital educational materials for teachers, which makes them a target group of the pilot process. Teachers of different subjects and levels of teaching were included in the pilot process. The target groups encompassed:

a) teachers with an in-depth knowledge about the cloud-computing

b) teachers who know that the cloud-computing exists but are unaware of its potential.

This way, project partners tried to ensure the participants' diversity in professions and knowledge about the cloud-computing.

Each school which is partner in the project had to include a minimum of 5 teachers in the pilot process. This way, project partners ensured including minimum of 20 teachers in the pilot, in total.

3.4.   Content of the pilot process

Digital educational materials for teachers tested during the pilot encompass two categories:

a) video tutorials with general instructions on using particular cloud-based tools

b) video tutorials with examples of using particular cloud-based tools in specific subjects and lessons.

Digital educational materials show how to use the following cloud-based tools: Actionbound, Adobe Spark, ClassDojo, Coggle, FlexClip, Flipsnack, Genially, Mentimeter, MindMeister, ProProfs, Quizizz and Wizer.me.

Furthermore, digital educational materials show the examples of using above mentioned cloud-based tools in the lessons of the following subjects: Visual Arts, Bulgarian language, Croatian language, English language, French language, History, Mathematics, Music and Science.

Before running the pilot, each institution studied the online repository with the materials in order to select the most suitable materials to be piloted, according to the interests and needs of the teachers included in the pilot process. Each school which is partner in the project had to test a minimum of 20 different digital educational materials for teachers during the pilot process.
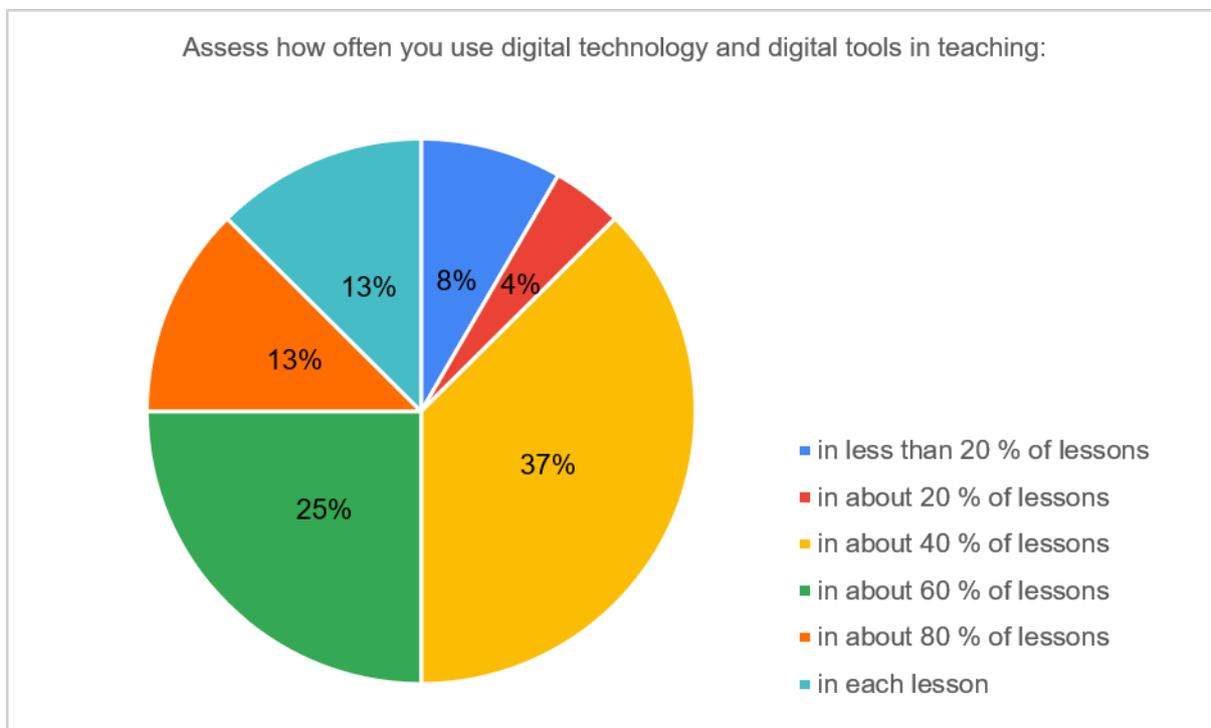
3.5.   Running the pilot process

Each school which is partner in the project organized running the pilot internally. Partners could arrange the pilot as a face-to-face training or in an online environment – depending on the project partners' preference and current COVID-19 restrictions. Either way, the pilot process participants had to carry out all following steps:

- conducting the survey before the pilot process
- testing the digital educational materials for teachers
- creating new digital materials using newly gained insights
- conducting the survey after the pilot process.

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4. Results of the survey conducted before the pilot process

Algebra prepared questions for the online survey in English and project partners translated them to their national languages. Afterwards, Algebra created online questionnaires in Bulgarian, Croatian and French using the Google Forms and pilot managers were in charge of distributing the questionnaire to pilot participants. All pilot participants had to fill in the questionnaire before testing the digital educational materials. The aim of this questionnaire was to investigate the participants' tendency to use digital technology and cloud-computing before the pilot process, as well as to find out what they expect to learn and achieve during the pilot process.

In total, 37 teachers from Bulgaria, Croatia and France participated in the pilot process. Most of them (88 %) teach the students aging from 11 to 14 years. On a scale from 1 to 5, majority of the teachers estimated their own digital skills and computer literacy with grade 5 (42 %). In addition, 29 % of them estimate their described knowledge with grade 4, 21 % with a grade 3, 8 % with a grade 2 and none of them with a grade 1. Most of the teachers (37 %) who participated in the pilot use digital technology and digital tools in teaching in about 40 % of their lessons. Furthermore, 8 % of the participants use digital technology and tools in less than 20 % of their lessons, and 13 % of the participants pointed out that they use them in each lesson (Figure 1). It can be concluded that majority of the participants sometimes use digital technology in teaching, but not regularly, on a daily basis.

Figure 1. Frequency of pilot participants' usage of the digital technology and digital tools

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Additionally, teachers were asked to mark the extent to which they have been using particular cloud tools in teaching so far. All of the listed tools are the ones for which project partners have previously created digital educational materials for teachers. The aim was to investigate frequency of teachers' usage of particular cloud tool, before they have been engaged to the pilot process where they had the opportunity to recognize benefits of using these tools. The results are very meaningful – majority of the teachers have never used most of the listed cloud tools (Figure 2). For example, the tool ProProfs was never used before by any participant of the pilot. The tools ClassDojo, Flex Clip, Genially and Mentimeter were previously sometimes used only by 15 – 20 % of the pilot participants. Tools Coggle, Genially and Quizizz were previously often used only by 10 – 20 % of the pilot participants. Following these results, it can be concluded that most of the teachers who were filling in the survey before testing the educational materials, were not using listed cloud tools very frequently up to that point. Moreover, this analysis shows that pilot participants could upgrade their skills in using particular cloud tools and therefore largely benefit from participating in the pilot process. Finally, these results also show that previously created educational materials for teachers meet the pilot participants' needs.
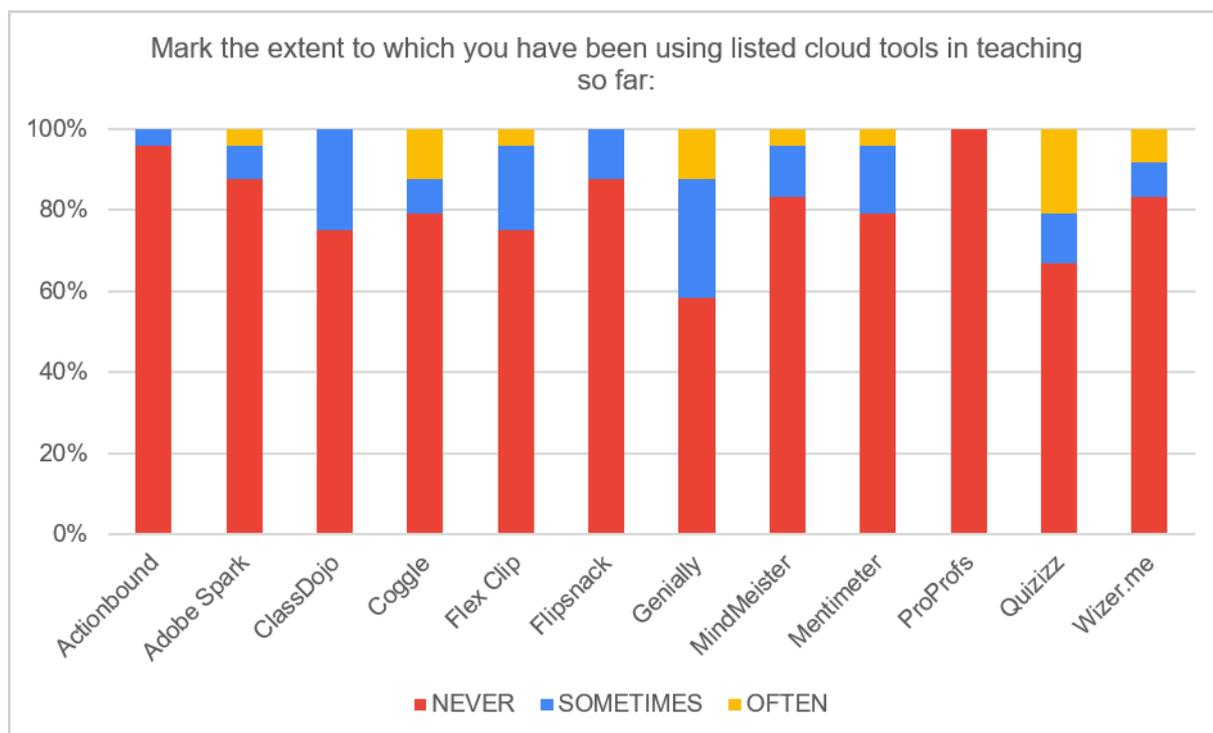
**Figure 2.** The extent to which pilot participants have been using particular cloud tools before the pilot process

Furthermore, teachers who participated in the pilot were asked to mark the fields and situations for which they would like to find a helpful digital tool. The aim of this was to investigate whether teachers face some challenges in teaching for which they are trying to find an effective solution.

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In addition, this question encouraged teachers to deliberate whether the cloud tools could be implemented in teaching and therefore facilitate different phases of teaching process (preparation, performance, exchanging materials, feedback, communication).

The situation that was pointed out by pilot participants most often is increasing students' involvement during the lesson (Figure 3). Majority of the teachers (23 %) would like to find helpful digital tool in order to increase students' motivation and involvement in the activities during the lessons. Situation that was also pointed out many times is receiving feedbacks from students on their acquired knowledge (21 % of the pilot participants). In addition, 16 % of the participants would like to find a digital tool in order to improve work efficiency (including preparations for the lessons), and 12 % for exchanging learning materials with students as well as for developing students' digital skills. The rest of the situations are: successful classroom management (8 %), receiving completed assignments from students (4 %), collecting students' assignments in some sort of students' portfolios (2 %) and exchanging materials with colleagues (2 %).

The results show that teachers are willing to find useful digital tools and implement them in their everyday work in order to prevail the challenges related to all phases of teaching process.
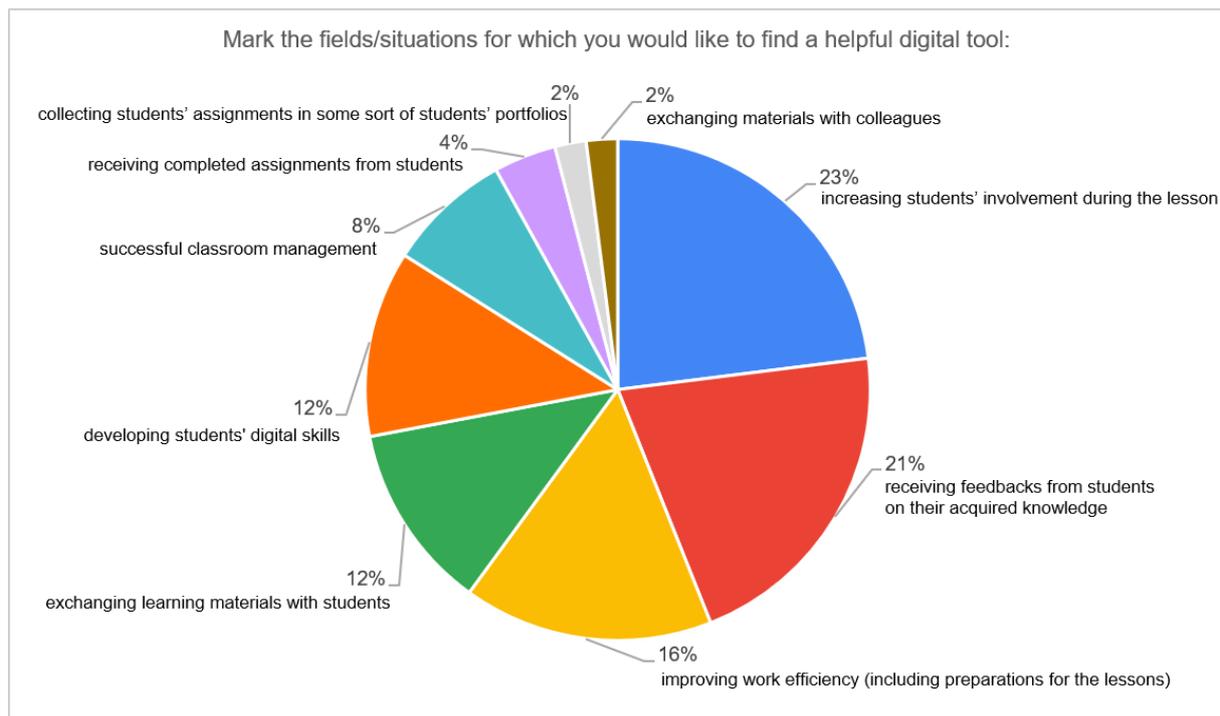
Figure 3. The fields and situations for which pilot participants wanted to find a helpful digital tool before the pilot process

5. Insights gained during the pilot process

5.1. Secondary School St. St. Cyril and Methodius

In the Secondary School St. St. Cyril and Methodius, the pilot process was conducted as a face-to-face training and it was held on 24th December 2021. The pilot manager was Dimitria Ayanska, member of the *Kids in Clouds* project team, who ensured proper implementation of all steps which were defined as mandatory within the pilot process.

The following teachers[1] participated in the pilot process:

- Teacher 1 – Bulgarian Language and Literature teacher
- Teacher 2 – Primary teacher
- Teacher 3 – English Language teacher
- Teacher 4 – Mathematics teacher
- Teacher 5 – Primary teacher

The following learning materials were tested during the pilot process:

- Tutorial on using Flipsnack 2 – Kids in Clouds – BG
- Example of using Genially in English Language lessons – Kids in Clouds – BG
- Tutorial on using Quizizz 2 – Kids in Clouds – BG
- Tutorial on using ClassDojo 1 – Kids in Clouds - BG
- Tutorial on using ClassDojo 1 – Kids in Clouds – BG
- Tutorial on using FlipSnack 1 – Kids in Clouds – BG
- Example of using AdobeSpark in Science lessons – Kids in Clouds – BG
- Example of using ProProfs in English Language lessons – Kids in Clouds – BG
- Example of using Actionbound in Mathematics lessons – Kid in Clouds – BG
- Example of using Genially in Mathematics lessons 2 – Kids in Clouds – BG
- Tutorial on using Mentimeter – Kids in Clouds – BG
- Example of using ProProfs in History lessons – Kids in Clouds – BG
- Example of using Coggle in History lessons – Kids in Clouds – BG
- Tutorial on using Genially 1 – Kids in Clouds – BG
- Example of using Mentimeter in History lessons 1 – Kids in Clouds – BG
- Example of using Wizerme in Mathematics lessons – Kids in Clouds – BG
- Example of using Actionbound in English Language lessons – Kids in Clouds – BG
- Example of using FlexClip in English Language lessons – Kids in Clouds – BG
- Example of using MindMeister in English Language lessons – Kids in Clouds – BG
- Example of using Quizizz in English Language lessons – Kids in Clouds - BG

The teachers who participated in the pilot are all very motivated to participate in various trainings and educations. Two participants are primary teachers – age 52 and age 56. They teach all subjects from 1st to 4th grade. One is more experienced in using digital materials than the other but the other is very fast learner and is very fascinated by the opportunities that trainings can offer.

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[1] Names of the teachers are gathered and stored by Project Coordinator, but are removed from this document in respect with the GDPR provisions.

Participating in the pilot and testing materials broadened her skills in using digital tools in teaching. Teacher who is more experienced when it comes to digital and cloud tools has been a great help during the pilot, helping other participants recognizing the value of cloud tools. Despite her previous knowledge and skills, there were still cloud tools that she has not used before, so this was an opportunity to broaden her skills. Both Primary teachers who participated in the pilot pointed out that students are always very willing to participate when it comes to digital tools in the classroom.

English Language teacher, age 43, has participated in other projects and this was not her first time experiencing digital or cloud tools but the tools she tested in this pilot were new to her and she was very glad to try them. She concluded that she will continue using the tools in teaching and with her students.

Mathematics teacher, age 33, has been a secondary teacher for approximately 4 years, the same as Bulgarian Language teacher, age 32. They have learnt the most from the pilot process and testing the materials since they got the chance to try out tools which were new to them. They were both very motivated and happy by the outcomes and reported that students' reactions on using new cloud tools were very good.

All 5 pilot participants concluded that the process was not complicated but that it was rather simple and well organized. They felt very satisfied by learning how to use new tools in class and by the reactions of their students afterwards, who are always more interested in the process of learning when it is partially digitalized.

5.2. Primary School Horvati

In the Primary School Horvati, the pilot process was conducted as a face-to-face training and it was held on 22nd December 2021. The pilot manager was Suzana Delić, member of the *Kids in Clouds* project team, who ensured proper implementation of all steps which were defined as mandatory within the pilot process.

The following teachers[2] participated in the pilot process:

- Teacher 1 – Music teacher
- Teacher 2 – Biology teacher
- Teacher 3 – Art teacher
- Teacher 4 – Math teacher
- Teacher 5 – Croatian Language teacher
- Teacher 6 – Primary teacher
- Teacher 7 – English teacher

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The following learning materials were tested during the pilot process:

- Example of using Flipsnack in Music lessons – Kids in Clouds – HR
- Example of using Wizerme in Music lessons – Kids in Clouds – HR
- Example of using MindMeister in Biology lessons – Kids in Clouds – HR
- Example of using Genially in Biology lessons – Kids in Clouds – HR
- Example of using Flipsnack in Art lessons 1 – Kids in Clouds – HR
- Example of using Flipsnack in Art lessons 2 – Kids in Clouds – HR
- Example of using Actiounbound in Mathematics lessons – Kids in Clouds – HR
- Example of using Wizerme in Mathematics lessons – Kids in Clouds – HR
- Example of using Flexclip in Mathematics lessons – Kids in Clouds – HR
- Example of using Wizerme in Croatian Language lessons – Kids in Clouds – HR
- Example of using Quizizz in Croatian Language lessons – Kids in Clouds – HR
- Example of using Actiounbound in Croatian Language lessons – Kids in Clouds – HR
- Example of using Adobe Spark in Croatian Language lessons – Kids in Clouds – HR
- Example of using MindMeister in Science lessons – Kids in Clouds – HR
- Example of using ProProfs in Science lessons – Kids in Clouds – HR
- Example of using Genially in Science lessons – Kids in Clouds – HR
- Example of using Mentimeter in English Language lessons – Kids in Clouds – HR
- Example of using Genially in English Language lessons – Kids in Clouds – HR
- Example of using Flexclip in English Language lessons – Kids in Clouds – HR
- Example of using Quizizz in English Language lessons – Kids in Clouds – HR

The teachers who participated in the pilot age from 28 to 49 years and are all very interested in using digital technology in teaching. Therefore, they were all very motivated to test newly created digital educational materials, in order to upgrade their knowledge about the cloud tools and apply new teaching methods with their students. Participants emphasized that they need to keep up with technology development. In addition, due to pandemic, teachers had to use digital tool in order to maintain the teaching process in different circumstances. Therefore, this motivated participants to broaden their skills.

Pilot participants were previously involved in a series of workshops about using digital tools in teaching, so they are familiar with the certain tools, but there are many more cloud tools that teachers could use and benefit out of it. Some of these tools were used during the pilot process, while testing the digital educational materials.

Teachers were extremely pleased to participate in the pilot process. Namely, it was exceptional for them to see the exact examples of how the particular cloud tool could be used in teaching the subject which they teach. This is what they especially pointed out during the evaluation and discussion with the pilot manager. They have also tried to apply certain digital tools in their teaching and believe that this has an extremely good effect on students' motivation. In the short term, the only disadvantage is that it takes a lot of time to make your own material when you are a beginner, but in the long run and with mastering this skill, it will be faster and easier. Finally, teachers could always consult the created educational materials when they would have some insecurities, and materials represents some kind of heritage for other generations of teachers.

Participating teachers believe that sharing content between teachers and students is the key to success.

5.3.   College Jules Reydellet

In the College Jules Reydellet, the pilot process was conducted as a face-to-face training and it was held on 2nd December 2021. The pilot managers were Audrey Wilkinson and Marine Vannoote, members of the *Kids in Clouds* project team, who ensured proper implementation of all steps which were defined as mandatory within the pilot process.

The following teachers[3] participated in the pilot process:

- Teacher 1 – Spanish Language teacher
- Teacher 2 – Spanish Language teacher
- Teacher 3 – English Language teacher
- Teacher 4 – English Language teacher
- Teacher 5 – German Language teacher
- Teacher 6 – French Language teacher
- Teacher 7 – French Language teacher
- Teacher 8 – French and Latin Language teacher
- Teacher 9 – Biology teacher
- Teacher 10 – Biology teacher
- Teacher 11 – Mathematics teacher
- Teacher 12 – Physics and Chemistry teacher
- Teacher 13 – Physical Education teacher
- Teacher 14 – Physical Education teacher
- Teacher 15 – Physical Education teacher
- Teacher 16 – Music teacher
- Teacher 17 – Librarian
- Teacher 18 – ICT teacher
- Teacher 19 – Mathematics teacher
- Teacher 20 – Mathematics teacher

The following learning materials were tested during the pilot process:

- Example of using Actionbound in Mathematics lessons – Kids in Clouds – FR
- Example of using Actionbound in English Language lessons – Kids in Clouds – FR
- Tutorial on using Flexclip 1 – Kids in Clouds – FR
- Example of using Flexclip in English Language lessons – Kids in Clouds – FR
- Example of using Flipsnack in Music lessons – Kids in Clouds – FR
- Example of using Genially in Mathematics lessons 1 – Kids in Clouds – FR
- Example of using Genially in Mathematics lessons 2 – Kids in Clouds – FR
- Example of using Genially in Mathematics lessons 3 – Kids in Clouds – FR
- Example of using Genially in English Language lessons – Kids in Clouds – FR

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[3] Names of the teachers are gathered and stored by Project Coordinator, but are removed from this document in respect with the GDPR provisions.

- Tutorial on using Genially – Kids in Clouds – FR
- Example of using Mindmeister in Science lessons – Kids in Clouds – FR
- Tutorial on using Mindmeister – Kids in Clouds – FR
- Example of using Mindmeister in English Language lessons – Kids in Clouds – FR
- Tutorial on using Mentimeter – Kids in Clouds – FR
- Example of using Mentimeter in English Language lessons – Kids in Clouds – FR
- Example of using Wizerme in Mathematics lessons – Kids in Clouds – FR
- Tutorial on using Wizerme 1 – Kids in Clouds – FR
- Example of using Wizerme in Music lessons – Kids in Clouds – FR
- Example of using Wizerme in Mathematics lessons – Kids in Clouds – FR
- Tutorial on using Quizziz 1 – Kids in Clouds – FR
- Example of using Quizziz in Science lessons – Kids in Clouds – FR

The teachers who participated in the pilot teach students who age 11 to 15 years. Teachers are generally interested in using digital tools in teaching as well as in training where they could find out some new teaching methods. Overall, teachers included in the pilot were aware of a few cloud tools, but they did not know that there were so many of them. Moreover, during the discussion with pilot managers, teachers emphasized that they did not know that there are so many cloud tools that could actually suit their subject.

Teachers tested the tools that were not familiar to them, and they were interested in studying materials that show how could a particular tool be used in a subject they teach. Teachers' reactions during the pilot were very positive and teachers felt empowered to apply their new insights in the teaching process. Moreover, after the pilot process was over, teachers implemented some of their new skills in teaching and reported that students' reactions on using cloud tools were very positive, students' motivation and interest during the lessons increased and teachers pointed out that these tools and methods will be included in their teaching from now on.

5.4.   Ludina Primary School

In the Ludina Primary School, the pilot process was conducted as a face-to-face training and it was held in the period 13th December 2021 – 17th December 2021. The pilot manager was Tomislav Pavlović, member of the *Kids in Clouds* project team, who ensured proper implementation of all steps which were defined as mandatory within the pilot process.

The following teachers[4] participated in the pilot process:

- Teacher 1 – Art teacher
- Teacher 2 – Music teacher
- Teacher 3 – Primary teacher
- Teacher 4 – Primary teacher
- Teacher 5 – Primary teacher

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[4] Names of the teachers are gathered and stored by Project Coordinator, but are removed from this document in respect with the GDPR provisions.

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The following learning materials were tested during the pilot process:

- Tutorial on using Flipsnack 1 – Kids in Clouds – HR
- Tutorial on using Flipsnack 2 – Kids in Clouds – HR
- Tutorial on using Adobe Spark 1 – Kids in Clouds – HR
- Tutorial on using Adobe Spark 2 – Kids in Clouds – HR
- Tutorial on using FlexClip – Kids in Clouds – HR
- Tutorial on using Mentimeter – Kids in Clouds – HR
- Tutorial on using Wizerme 1 – Kids in Clouds – HR
- Tutorial on using Wizerme 2 – Kids in Clouds – HR
- Tutorial on using Genially 1 – Kids in Clouds – HR
- Tutorial on using Quizizz 1 – Kids in Clouds – HR
- Example of using Quizizz in Croatian Language lessons – Kids in Clouds – HR
- Example of using Adobe Spark in Croatian Language lessons – Kids in Clouds – HR
- Example of using FlexClip in Mathematics lessons – Kids in Clouds – HR
- Example of using Wizerme in Mathematics lessons – Kids in Clouds – HR
- Example of using Quizizz in Science lessons – Kids in Clouds – HR
- Example of using Adobe Spark in Science lessons – Kids in Clouds – HR
- Example of using Actionbound in Croatian Language lessons – Kids in Clouds – HR
- Example of using Mentimeter in English Language lessons – Kids in Clouds – HR
- Example of using Genially in Science lessons – Kids in Clouds – HR
- Example of using Wizerme in Croatian Language lessons – Kids in Clouds – HR

Art teacher who teaches pupils aging 10 to 14 years uses technology in her lessons occasionally. Her previous knowledge about the cloud tools was average, with a few tools she was using regularly. She was very pleased with the tools she learned about and she is willing to use them in her everyday teaching in future.

Music teacher who teaches pupils aging 10 to 14 years uses technology in her lessons on a daily basis. She even creates content using digital tools. Since she had the opportunity to expand her knowledge about the cloud tools, she found participating in the pilot process very useful and it encouraged her to use cloud tools even more frequently in her lessons.

One Primary teacher, who teaches pupils aging 6 to 10 years, uses technology in her lessons occasionally. Her previous knowledge about the cloud tools was above average, with a few tools she was using regularly (Microsoft Teams, OneNote classroom Notebook). Finally, she is satisfied with the tools she learned about and she will continue using them.

Other two Primary teachers teach pupils aging 6 to 10 years. They use technology in their lessons every day – due to the fact that they teachers in combined classes where technology is a must. Their previous knowledge about the cloud tools was above average, and they prefer using presentations tools and also to prepare and deliver content for their pupils using online cloud tools (OneNote Classroom Notebook). They are satisfied with the tools they learned about and they will continue using them.

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6. Results of the survey conducted after the pilot process

Algebra prepared questions for the online survey in English and project partners translated them to their national languages. Afterwards, Algebra created online questionnaires in Bulgarian, Croatian and French using the Google Forms and pilot managers were in charge of distributing the questionnaire to pilot participants. All pilot participants had to fill in the questionnaire after testing the digital educational materials. The aim of this questionnaire was to investigate the participants' opinion about the quality of the tested materials and to assess the user experience of the online repository. Additionally, participants were asked to assess how the use of cloud-based tools could improve their work in the future and in which situations they will be able to apply the obtained knowledge.

Pilot participants, teachers from Bulgaria, Croatia and France, studied the digital educational materials about using the cloud tools which are stored on the online repository. Afterwards, they tried to use particular cloud tools on their own and they tested some of their many functionalities. Practically, this means that pilot participants tried to create their own digital educational materials (presentations, quizzes, videos, infographics etc.). That way, pilot participants gained some insights into the possibilities that cloud tools provide and could get a picture about their usage in teaching.

As emphasized before, 37 teachers from Bulgaria, Croatia and France participated in the pilot process. While filling in the questionnaire after testing the educational materials, pilot participants were asked which digital tools they have tested using the provided educational materials. The tool that was tested by majority of the pilot participant (14 of them) was Mentimeter. Tools Quizizz and Wizer.me were tested by 13 participants, Genially by 10 participants, Adobe Spark by 7 participants and so on (Figure 4).
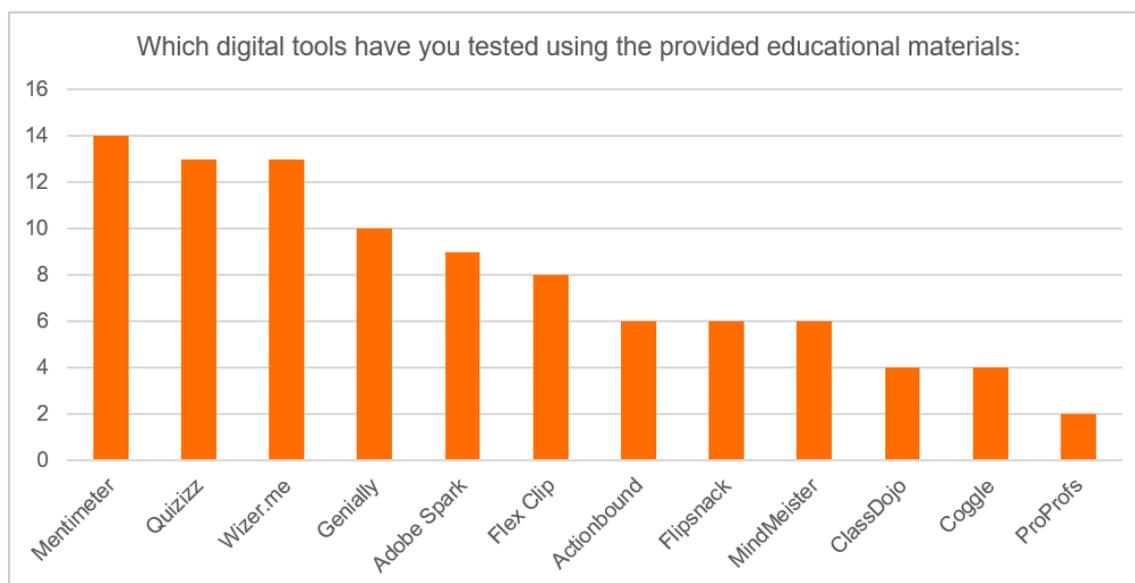

Figure 4. Digital tools that have been tested by pilot participants using the provided educational materials

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Since results of the questionnaire conducted before testing the materials showed that many of the cloud tools for which educational materials were created, were rarely used by majority of the pilot participants, involvement of the participants in testing these tools is satisfactory.

In addition, pilot participants were asked to evaluate their overall impression of the educational materials which they have tested. In order to investigate this topic thoroughly, pilot participants were asked to indicate the extent to which they agree with the eight statements, by pointing out their opinion on a scale from strong disagreement (grade 1) to strong agreement (grade 5).

It can be concluded that created educational materials are easy to use, since equal part of the teachers who participated in the pilot strongly agree (46 %) or agree (46 %) with the statement investigating this topic (Figure 5). Only 8 % of the participants marked that they neither agree nor disagree.

Moreover, 65 % of the pilot participants pointed out that they strongly agree that educational materials explain the use of digital tools in a simple way (Figure 5). Additionally, 9 % of the pilot participants agree with the statement and 9 % of them disagree with the statement. It can be concluded that majority of the teachers who participated in the pilot find educational materials easy to use and think that materials explain the content in a simple way.
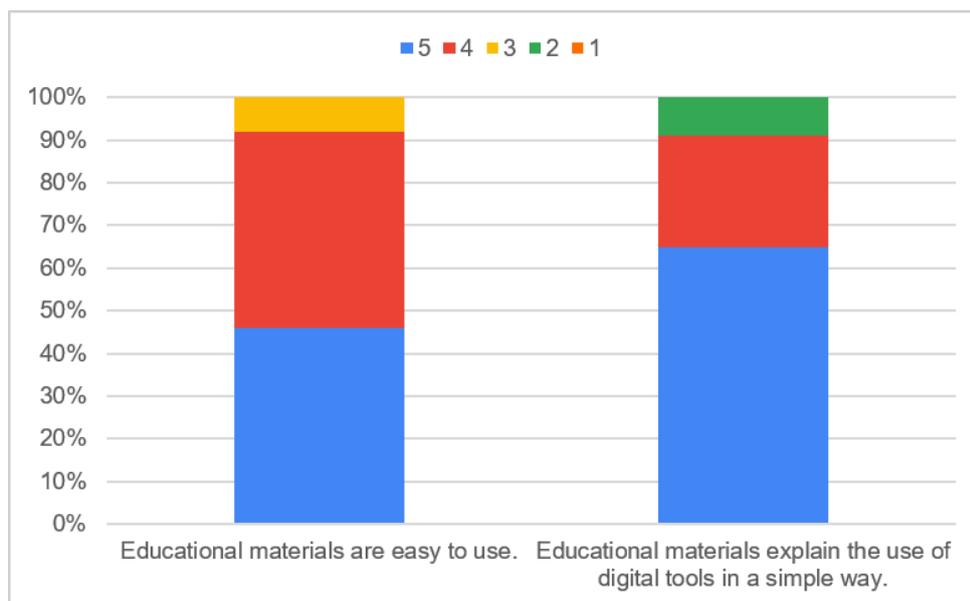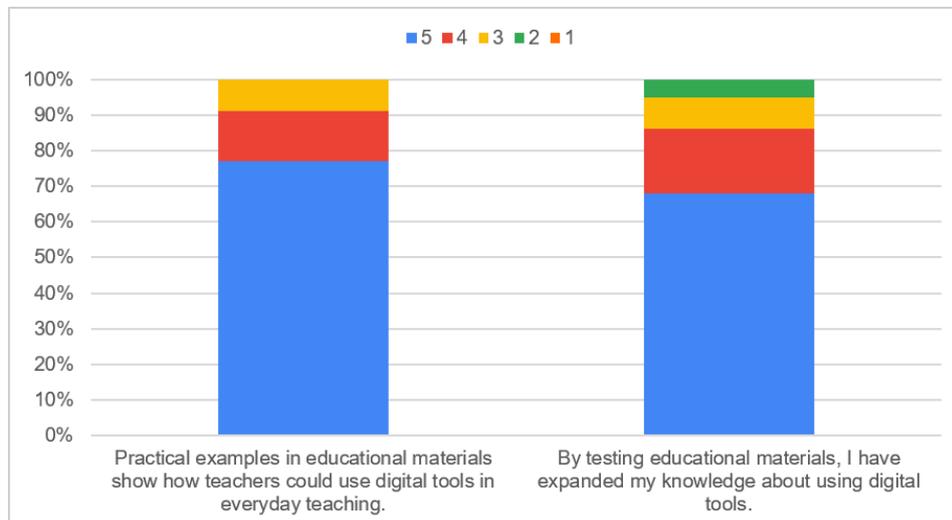

Figure 5. Pilot participants' evaluation of the quality and practicality of the educational materials

Furthermore, according to the questionnaire results, 77 % of the pilot participants strongly agree that practical examples in educational materials show how teachers could use digital tools in everyday teaching (Figure 6). It can be concluded that educational materials served the purpose of introducing teachers with functionalities of particular cloud tools, but also showed them practical pedagogic methods and didactic strategies that can be used in everyday teaching of particular subject.

Moreover, 68 % of the pilot participants strongly agree that they have expanded their knowledge about using digital tools by testing educational materials (Figure 6). 18 % of them agree with that

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statement, 9 % of them neither agree nor disagree, and 5 % of them disagree. These results were probably most affected by teachers' previous knowledge about the cloud tools and frequency of using them in teaching. It can be concluded that most of the pilot participants have gained new knowledge and skills in the process of reviewing educational materials and testing the cloud tools.

Figure 6. Pilot participants' evaluation of practical examples included in the educational materials and level of knowledge about cloud tools gained after the pilot

The questionnaire investigated if teachers will continue to use the cloud tools they were introduced with. Pilot participants were asked if they will use the tools for preparing their lessons in future more often (Figure 7). 77 % of pilot participants emphasized that they continue to use cloud tools they were introduced with in order to facilitate the preparation of their lessons. 18 % of the pilot participants is not sure whether they will use these tools in future and only 5 % stated that they will not use cloud tools in the future for this purpose.
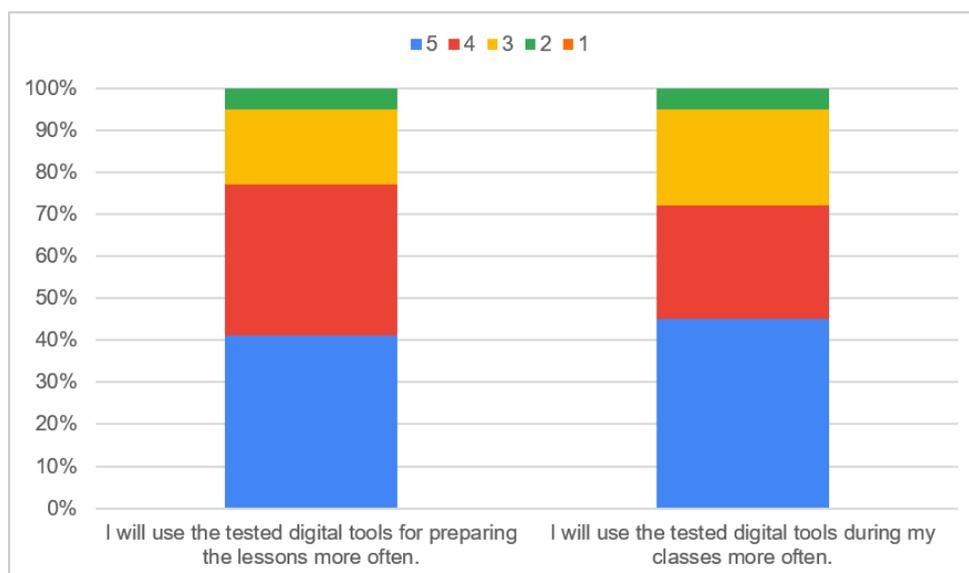
Figure 7. Pilot participants' evaluation of their willingness to use the tested digital tools in the future for various purposes

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Additionally, teachers were asked if they will use cloud tools they were introduced with during their classes more often in the future. The results show that 72 % of the pilot participants will use these tools during their lessons more often in the future, 23 % of them is not sure yet and only 5 % will not use them during their lessons in the future (Figure 7). It can be concluded that the pilot process successfully introduced teachers with possibilities of using cloud tools in teaching since majority of the teachers will continue to use particular cloud tools in future for preparing their lessons and during classes. Minority of the pilot participants are not sure if they will continue to use cloud tools in teaching or they think they will not continue using them – it can be assumed that this is related to different level to which particular schools and classrooms are equipped with IT devices.
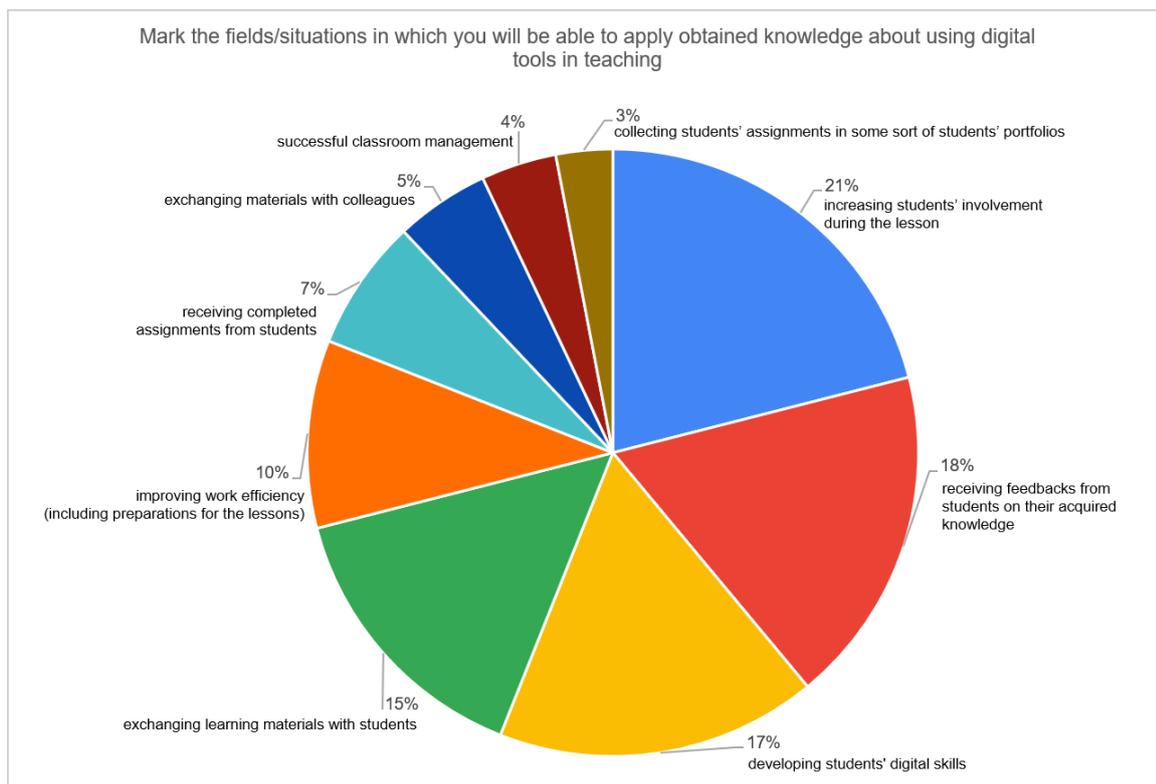
Furthermore, pilot impact on the participants has been investigated. Teachers participating in the pilot were asked if educational materials encouraged them to introduce new methods of teaching and working with students. The results show that 86 % of the pilot participants agree with this statement (Figure 8). Additionally, 82 % of the pilot participants pointed out that they are more interested in exploring digital tools which could be used in teaching after studying educational materials. It can be concluded that pilot had very positive impact on teachers, since majority of pilot participants felt encouraged to use cloud tools in teaching in the future and therefore introduce new teaching methods while working with students. Moreover, after participating in the process of testing cloud tools, majority of the teachers felt ready to explore cloud tools on their own in the future and therefore continue to expand their knowledge and skills.
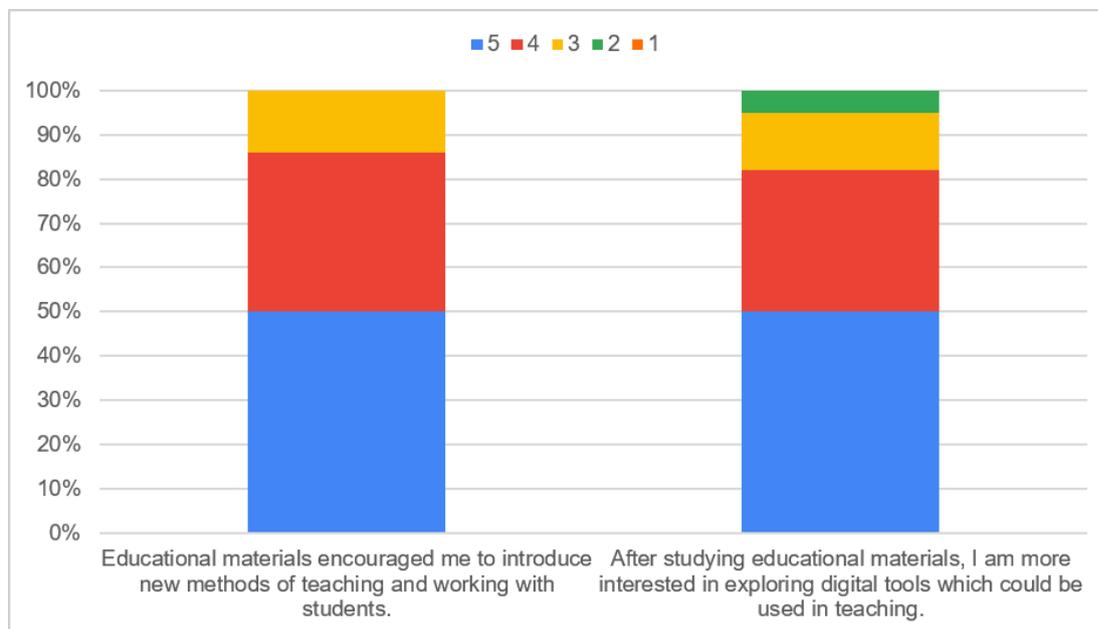
Figure 8. Pilot participants' willingness to introduce new teaching methods and explore digital tools in future
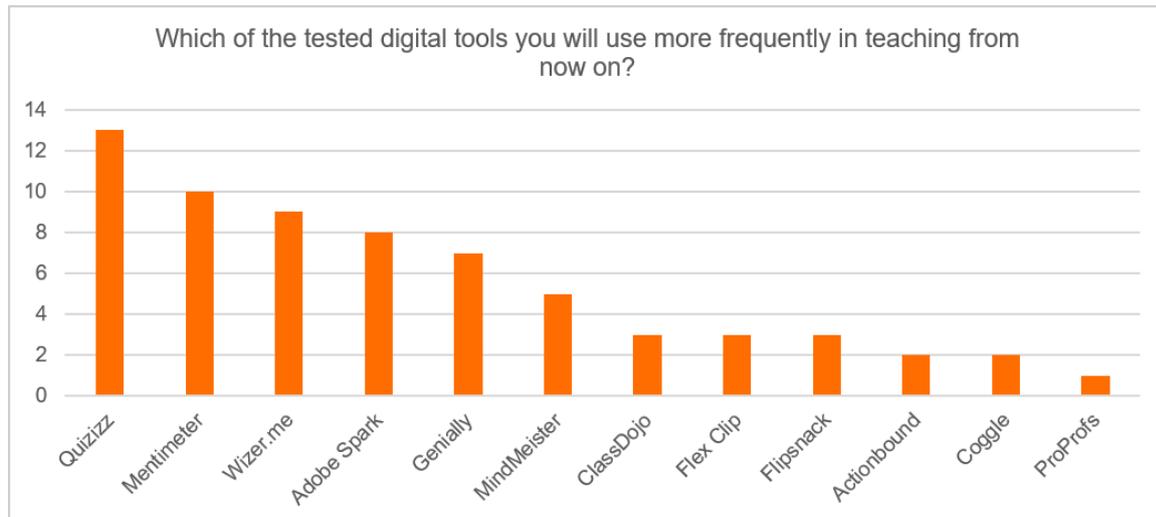
In addition, it was investigated in which fields and situations pilot participants will be able to apply obtained knowledge about using digital tools in teaching. Majority of the pilot participants (23 %) pointed out that they will use the obtained knowledge to increase students' involvement

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during the lesson (Figure 9). Besides, 18 % of the teachers pointed out that they will use their new knowledge about cloud tools in order to receive feedbacks from students on their acquired knowledge, and 17 % of them for developing students' digital skills. 15 % of the participants will use their new to facilitate the exchange of learning materials with students and 10 % of participants to improve work efficiency (including preparations for the lessons). These situations, identified as the ones in which newly acquired teachers' knowledge will be used most frequently, correspond majorly to the ones that were identified as the situations for which teachers strived to find helpful digital tools in the beginning of the pilot process.

Mark the fields/situations in which you will be able to apply obtained knowledge about using digital tools in teaching

- 4% successful classroom management
- 3% collecting students' assignments in some sort of students' portfolios
- 5% exchanging materials with colleagues
- 21% increasing students' involvement during the lesson
- 7% receiving completed assignments from students
- 10% improving work efficiency (including preparations for the lessons)
- 18% receiving feedbacks from students on their acquired knowledge
- 15% exchanging learning materials with students
- 17% developing students' digital skills

Figure 9. The fields and situations in which pilot participants will be able to apply obtained knowledge about using digital tools in teaching

Finally, pilot participants were asked which of the tested digital tools they will use more frequently in teaching from now on (Figure 10). Most of the teachers will start using or use more frequently the tool Quizizz (13 participants), Mentimeter (10 teachers), Wizer.me (9 teachers), Adobe Spark (8 teachers), Genially (7 teachers) and MindMeister (5 teachers). Other tested tools will also be used more frequently in teaching by pilot participants. The tools that teachers pointed out they will use more frequently in teaching majorly correspond to the ones that were tested more frequently during the pilot. It can be concluded that pilot helped teachers to introduce themselves with particular cloud tools, since learning about the particular tool and testing it resulted with a decision for using that tool more frequently in the future.

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Figure 10. Digital tools that will be used more frequently by pilot participants in teaching from now on

7. Recommendations for teachers based on best practices

Based on the pilot process results and best practices of implementation of the cloud-computing in teaching by pilot participants, a set for recommendations for teachers were created. Recommendations are the following:

- While starting to use the cloud-based tools, process of creating digital learning materials can be longer than desired, but after a while, when teachers master the usage of cloud tools, it is much easier to prepare the lessons, conduct the lessons and exchange the materials with students.
- Besides exchanging the materials with students, cloud-tools enhance the exchange of materials with colleagues. This way, process of creating digital learning materials is even faster because teachers can find inspiration in online libraries of prepared learning materials or adapt them to meet the needs of their students.
- Many teachers strive to find a way to increase students' involvement during the lessons. In the modern days, when kids and students are used to daily usage of digital technology, cloud tools represent a successful way of raising students' motivation for the teaching content which can result with their more significant involvement during the lessons.
- Teaching process is often transferred to the online environment – in order to be ready to carry out all the learning outcomes, no matter the environment, it is important to have necessary skills to manage teaching and communication with students.
- By mastering the use of cloud tools, teachers become more resilient to the challenges that can arise during different phases of teaching process (preparation, performance, exchanging materials, feedback, communication). Possession of skills crucial for implementation of cloud tools in everyday teaching, makes it possible to improve work efficiency and therefore obtain better effects of the teaching process in general.
- Daily usage of cloud tools improves teachers' and students' digital skills which is crucial for living and working in modern days and in future.