

REALISING CLASSROOM
DIFFERENTIATION AND INCLUSION
WITH TABLETS

Good practices
from European classrooms



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TABLIO-project <http://tablio.eu>
Tablets for classroom differentiation and inclusion
Erasmus+ Key Action 2: Cooperation for innovation

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1 Introduction

This publication is one of the intellectual outputs of the Tablio-project ***Tablets for classroom differentiation and inclusion*** (Erasmus+ Key Action 2: Cooperation for innovation).

In the schoolyear 2016-2017 an open call for good practices on differentiation and inclusion was spread in the participating countries: Italy, Northern-Ireland, Belgium, Slovenia, Turkey and Netherlands. The project partners were explicitly looking for schools and teachers that were already doing educational tablet implementation for differentiation and inclusion purposes.

Candidates were contacted by the project workers and a semi-structural interview was held, either face-to-face, either via Skype. We used the following set of questions for the interview:

CONTEXT ANALYSIS

1. *How would you describe your school and class context in general? How would you describe the class atmosphere, the class culture?*
2. *What is your school's grouping strategy? Would you describe your class as a homogeneous or a heterogeneous (mixed) classroom? Explain your answer please.*
This question links to organisational differentiation in the concept map.
3. *Please describe the infrastructure of your classroom (availability of tablets, number of tablets, projectors, wifi, classroom furniture,...).*
4. *Please tell me something about the pedagogical vision of your school.*

DESCRIPTION OF THE PRACTICE

5. *So, you use the tablet for classroom differentiation? Could you explain your practice in general?*
6. *Is the class group kept together, or are some students temporarily in another classroom or under supervision of another teacher?*
This question refers to the 'organisational differentiation'-section in the concept map.

CONTENT-differentiation

- These questions refer to the 'content'-section in the concept map.*
7. *What types of learning materials, ICT-tools or apps do you use in this practice? (How) Is the tablet involved?*
 8. *Do all students have to use the same learning materials, or is there any differentiation involved?*

PROCESS-differentiation

These questions refer to the 'process'-section in the concept map.



9. *What teaching methods do you use to realize the classroom differentiation? (How) Is the tablet involved?*
10. *How does guidance and coaching take place? (How) Is the tablet involved here?*
11. *How is feedback delivered to the students? (formative assessment) Do all students get the same type and quantity of feedback? (How) Is the tablet involved here?*
12. *Do the formative assessment influence the choice of the teaching technique?*

PRODUCT-differentiation

These questions refer to the 'product'-section in the concept map.

13. *How do you evaluate if students reach the learning objectives? (How) Is the tablet involved?*
14. *Do some students get another evaluation method, or do all students get the same?*
15. *Does the differentiation lead to more study success for all students?*
16. *Is there a link between the formative assessment and the summative assessment?*
17. *What do (would) you do if a student doesn't reach the learning outcomes of this lesson?*

STUDENT-characteristics

This question refers to the 'learner oriented'-section in the concept map.

18. *What student-characteristics do you (better) address with this differentiation approach?*
19. *What stakeholders are involved in this differentiation practice?*

This question refers to the 'stakeholders'-section in the concept map.

REFLECTION UPON THE PRACTICE

20. *Is it feasible, easy to do this differentiation with tablets into daily classroom practice?*
21. *What would you like to change to make the practice even better?*

After doing the interview, the practice was described by the project worker. Afterwards, the practice was sent to the interviewee in order to have a first review on correctness and gaps. Then the practice was analysed by the project worker, using the analysis framework. Via a review round, other project workers were able to screen the practices as well.

This process led to the following set of good practices. These practices differ since some are more situated on the meso-level, others are more situated on the classroom level, some describe more technical aspects, other more educational aspects.

For more information, please consult the Tablio-webpage (<http://tablio.eu>). Here you can also find the entire theoretical fundament of this analysis process.

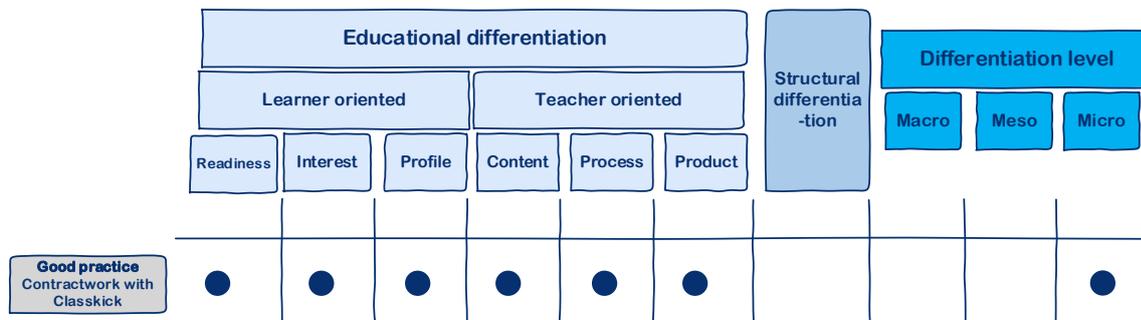


2 Adapting to different learning profiles with Classkick

2.1 Country of origin

Belgium

2.2 Educational analysis

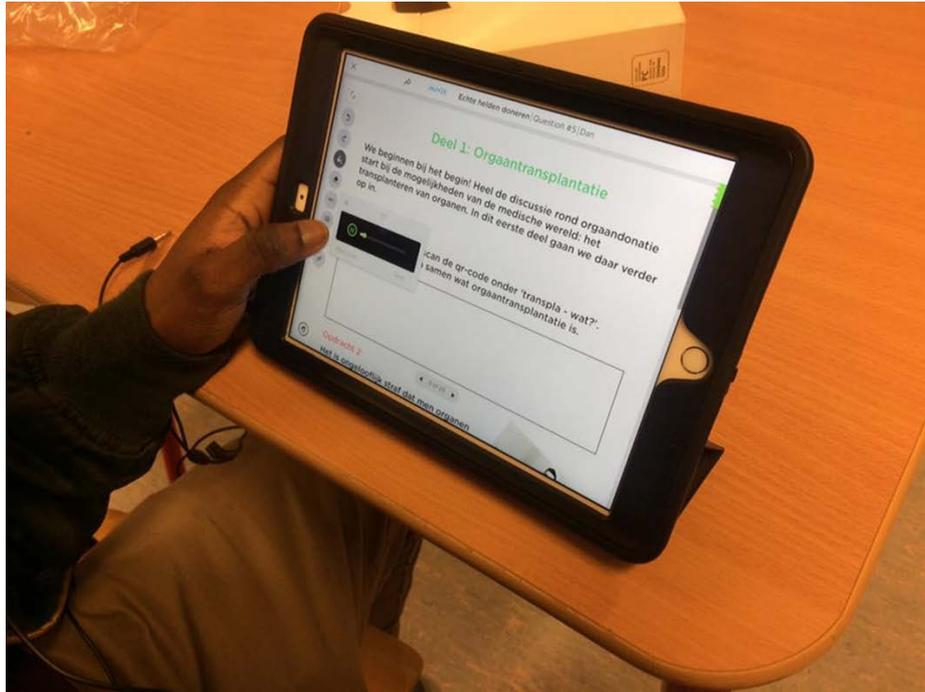


2.3 Description

Angelica Spikic, Céline Lowette, Ilse Klingeleers, Lucinda Luyts, Nadine Houbrechts and Thomas Eerdeken are teachers in secondary education. They all have a bachelor degree 'teacher for secondary education' and teach the subject PAV (project general subjects), but at the same time they are taking the PAV training, which is part of the teacher training at PXL. In this context, they made a digital paper about organ donation under the supervision of lector Hanne Rosius (PXL Education).

At the time of designing the package, the group focused on the initial situation in Angela Spikic' class. This was also the first class in which the package was used. Angelica is a PAV teacher in the second grade in vocational education. Her students specialise in sales. Vocational education classes are often very heterogeneous, and so is Angelica's. Some of her students take her class because of the adapted level, some of them choose to be there because they are genuinely interested in sales as a profession, still others 'descend to it' because of (a variety of) learning difficulties or because their native language is a foreign language. Angelica's school is situated in the centre of Brussels. Due to its metropolitan context, the classes are very heterogeneous as far as cultural background and language are concerned.

The students in Angelica's class are not familiar with using tablets in the classroom. The school has a number of tablets at the students' disposal and a reliable WiFi- network. The classroom is big enough to allow the students to work actively.



A student working with Classkick

The package that has been developed aims to adapt to the above mentioned differences between students and uses the Classkick app (<http://classkick.com>). This device-independent tool (in the example the app was used on iPads) offers the students a number of assignments. The students work on these assignments in the classroom under the teacher's supervision. They can decide for themselves what order they complete the assignments in and how much time they want to spend on each one of them. Each assignment is offered in different varieties and students can make their own choices (content-differentiation), so they can work through the basic assignment at their own pace. The app facilitates the teacher's supervision. Angelica can keep an eye on her students' progress all the time. In the app, she can see which student is working on which assignment, which assignments have been finished and what the quality of the assignment is (cf. display matrix).



With this information, she can decide which students need her assistance and which don't. Classkick also offers students the possibility to take initiative and ask for Angelica's help. They can virtually raise their hand to ask a question or to make clear they want feedback for an assignment (cf. the orange hands in the screenshot). Being able to virtually raise their hands, is an advantage for more introvert students because it lowers the threshold (process-differentiation).



Display matrix for the teacher providing insight about progress and questions

Angelica can offer help via Classkick itself by sending a message that immediately appears on the student's tablet. Naturally, the teacher can still offer face-to-face support too. It all depends on the type of question or the need for assistance from the student. The app also enables stronger students to give feedback. They can react to questions in the system that have anonymously been asked by fellow-students. In Angelica's class this functionality was deactivated because her students couldn't handle it yet.

Moreover, by means of a sticker system teachers can easily inform students when they are doing well, or give them a small hint (e.g. : 'Fantastic!', 'Read and approved', 'You forgot something'. Take a good look at the assignment!', ...) This is a quick and easy way positive endorsement.

With the Classkick-app, assignments and feedback can be offered in different ways : with text, with sounds or visually. In the designed package, an audio version can be added to a written text. The student can then choose whether he reads the assignment or listens to it. This can be an advantage for dyslexic students or students with visual impairments (process– differentiation).



A spoken version is added to written instructions

Additionally, the app offers the possibility to import content in different ways. The possibility to integrate other tools (e.g. BookWidgets (<http://www.bookwidgets.com>), Thinglink (<http://www.thinglink.com>), EdPuzzle (<http://www.edpuzzle.com>), Padlet (<http://padlet.com>), etc.) through the hyperlink function, facilitates the realisation of the UDL-principle (*universal design for learning*) and adapt to the variety of learning preferences of students. By means of an example, links were made to the online tool Mentimeter (<http://www.mentimeter.com>), where students can give their opinion and look at the results of the class group in a bar chart. (students' learning profile)



Integration of the 'mentimeter' tool in Classkick



Also can students decide for themselves how they finish complete an assignment: the answer can be written, spoken, drawn, visualised by means of a picture or a video, or a combination of both. The images below give an idea of how one question can be answered in different ways. Thanks to this, the app facilitates easy adaptation to different learning profiles (student's learning profile).



The package was tested in Angelica's class first. Afterwards, it was also actively used in other classes. According to the teachers, the lessons in Classkick help students to make their own decisions without complicated organisational structures. They see it as an advantage to have an overview of the group's questions at all times, so they can timely adjust and endorse. The combination of question-driven feedback and the possibility for teachers to decide for themselves whether students need feedback or not, seems to work. The application appears to adapt well to various learning methods and language obstacles, and it lowers the threshold for introvert students. Finally, the teachers emphasize that the app is very user-friendly.

Students in all classes easily started working with the app. This means that it is also fit for students who are not used to working with tablets in the classroom. Students particularly appreciate the variation of activities and materials that can be integrated in Classkick. The feedback and the stickers are motivating and introvert students are not afraid to virtually raise their hands.



Students from Angelica's class working with Classkick

You can take a closer look at the package 'Real heroes donate' (Dutch version) and try it out on www.classkick.com or in the Classkick app. Log in as a student with code JXU YZE.

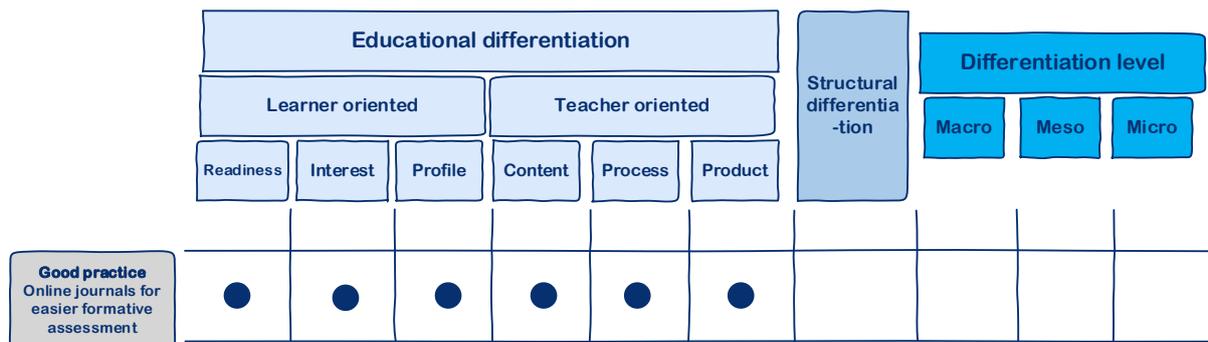


3 Use of tablets and online journal (digital portfolio) for easier formative assessment of pupils and improving inclusion of children

3.1 Country of origin

Slovenia

3.2 Educational analysis



3.3 Description

In order to achieve differentiation and inclusion in the classroom, focusing on pupils is essential. One of the best methods for regular monitoring of pupils' progress is formative assessment, since it allows them to set their own learning objectives and advance in line with their abilities, with the help of clear and thorough teacher's feedback. Monitoring pupils' progress can be much easier and transparent with the help of tablets.



The Osnovna šola Rače primary school from Slovenia, in collaboration with the National Education Institute Slovenia, is performing an innovation project "Using tablets and online journal in primary school" for the third consecutive year. With the project they wish:

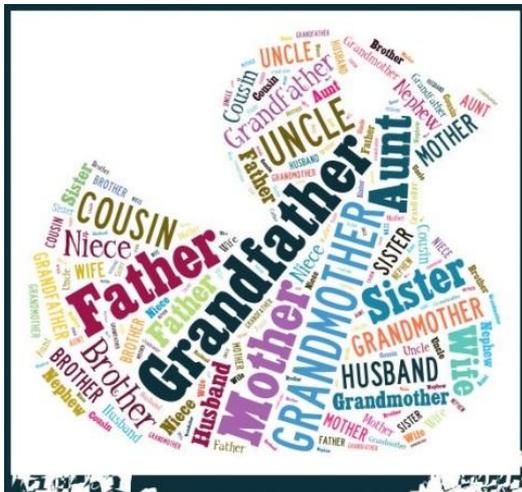
- to modernize educational practice at the school,
- to encourage motivation for work among pupils and guide them towards adopting new, different useful (digital) skills,
- to test the usefulness of a tablet and online journal for performing formative monitoring and influence the improvement of inclusion.



Project leader Ksenija Pečnik, an English teacher, says that through their practice, tablets together with digital portfolios, which are a basis for the feedback, proved to be an excellent tool for formative assessment. “For performing formative assessment, the pupils must know what they are going to study and then set the goals they wish to achieve themselves. This is done without tablets. The tablets however have a leading role in creating various products.”

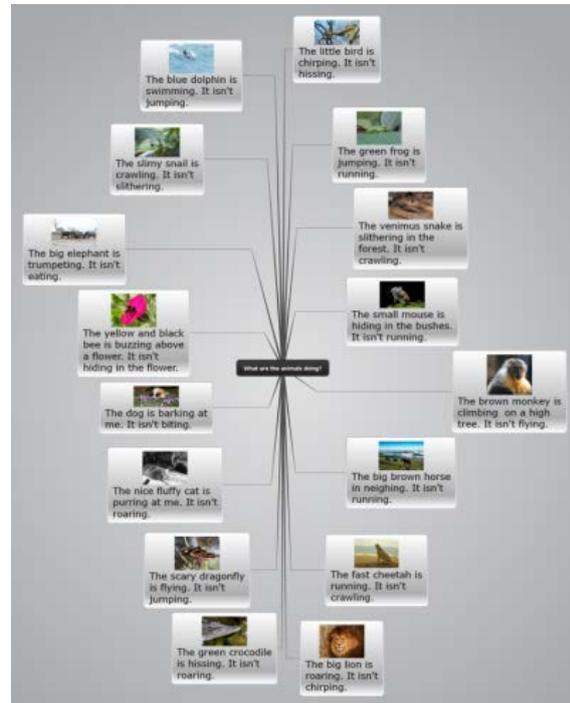
The pupils create diversely comprehensive and complex products by using tablets and various applications, such as:

- posters
(PicCollage – <http://pic-collage.com>)
- mindmaps
(Mindomo - <http://mindomo.com>)
- comics
(<http://ComicStripCreator.org>
<http://pizap.com>, Photo Talks –
<http://fueneco.com/photo-talks>)



- movies/videos (Viva Video, Slideshow Maker)
- sound recordings
- letters
- word clouds (Word Cloud, Word Art)
- interactive stories (Draw My Story, ThingLink)
- presentations (Prezi – <http://prezi.com>)
- talking images
- picture stories
- etc.

The teacher determines a specific theme, content emphasis and the application (which is chosen with regard to content, purpose and goal), and gives oral and written instruction that apply to everyone, while the pupils decide how extensive and in-depth their final product is going to be. Criteria which affects the final grade is created together with the pupils.

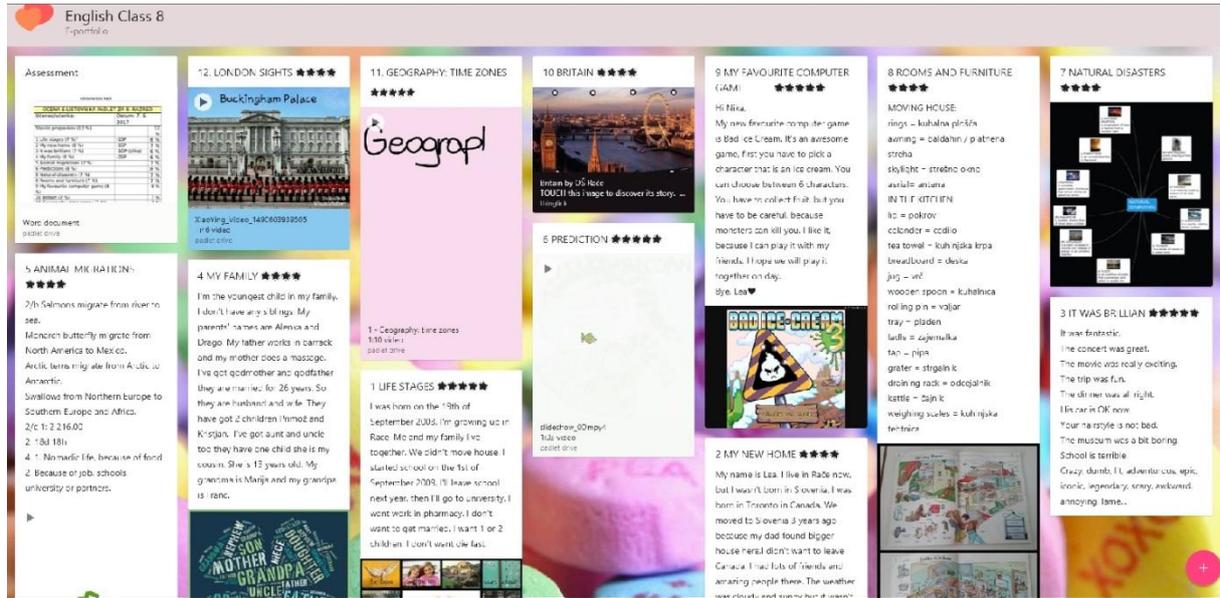




The criteria are then written on the whiteboard (how many images, slides, etc. the product must include, how much new vocabulary it should contain, which grammatical structures it should cover, while the text must be spelled properly as the pupils have access to an online dictionary, etc). All instructions and criteria are also available to pupils at all time on the school's special website, while the teacher is also reachable for any additional explanations by e-mail.



The pupils can work individually, in pairs, with the help of the teacher or in a group. Those who cannot create a product in specific application can also use another application and create a different type of product (for example, a photograph instead of a video; if someone stutters they do not have to record a speech but can only describe the theme). In their work, pupils can use the internet, e-dictionary, maps, etc. "We must understand that every child has their own strong and weak points. By using tablets, which are a popular accessory among pupils, they work and learn with a greater enthusiasm, and in a manner that suits them."



Each pupil creates a digital portfolio at the beginning of a school year with the help of a Google account in the Padlet application, where he stores products created during the learning process. With the help of a digital portfolio the teacher then monitors progress and achieved goals of every pupil through the entire school year, and can provide regular feedback and comments about his products, so he can improve them. Pupils mostly receive oral feedback and if they wish, also via e-mail. In case of e-quizzes (Kahoot – <http://kahoot.com>, Socrative – <http://www.socrative.com>), which are used primarily for evaluation of reading comprehension, the pupils receive feedback via tablets.



Moreover, the teacher's role in this kind of work is limited to guiding and coordination of learning. This is namely research-based and collaboration learning, which stimulates creativity and critical thinking of pupils. The lesson is more dynamic, since it is co-designed by the pupils with their suggestions and Country of original problem solutions. Independent and creative problem solving motivates them, allows independent development and teaches them to be persistent. The teacher influences the entire educational process and individual actions, and at the same time makes the pupil a center of the process, while he is there to offer constant professional support.

“It is very important that the pupils collaborate with each other. Someone is good in technology and someone is good in languages, and they complement one another. We noticed that Roma are very skillful with mobile phones and are much more successful in such work. At the same time, they collaborate with generally more successful pupils who are not as skillful with tablets,” Pečnik describes influence of this type of work on inclusion of pupils in the classroom.

According to Pečnik, this type of work best addresses the technically skilled and handy pupils who browse the internet often and have their own sources of information, pupils who like to play games,



and also everyone who love to play since they perceive such type of work as a game. “At the same time, this type of work is appropriate for auditory, visual and kinesthetic types of learners, since we can use tablet to engage all types. I also see the advantage of such dynamic work for motorically restless pupils. Unfortunately, this type of work is less suitable for static pupils who prefer routine and do not like change. It also confuses those with suspicion for autism and very slow learners,” says Pečnik.

Ksenija Pečnik teaches English from 6th to 9th grade at the school. In the 8th and 9th grade they are performing streamed classes, while the 6th and 7th grades are heterogeneous. The 24 tablets at the school were purchases with the help of a sponsor, a local company, while the teachers borrow them from each other. In each classroom there is a Wi-Fi internet, a portable computer, an interactive board, a projector and a big touch screen. Each year the project leader, English teacher Ksenija Pečnik, also prepares a course on the topic, however still only a few teachers use tablets in class.

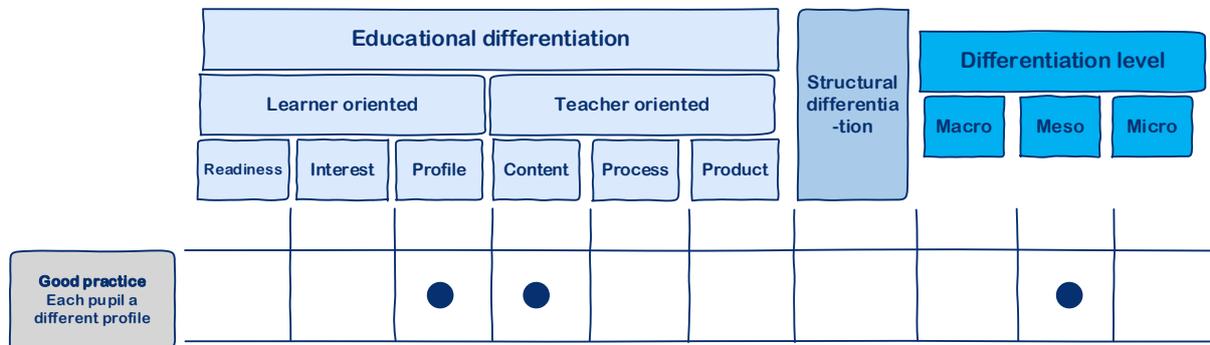


4 Each pupil a different profile

4.1 Country of origin

Netherlands

4.2 Educational analysis



4.3 Description



Every pupil is unique and has a right to an educational concept that addresses his or her personal needs. Candea College in Duiven (Netherlands) really aspires a tailor-made approach. The school is data driven and uses the RTTI-programme (reproduction, training, transfer, insight) in order to plot the cognitive profile of a pupil on basis of which the learning track (pre-vocational, vwo) can be determined. Learning is the starting point, not teaching. They want to abandon the traditional classroom model by starting to use adaptive learning. They want to work with a core curriculum in the

morning and a free choice part in the afternoon. In order to achieve that, a culture change for the teachers is needed such as a focus on learning goals.

A number of teachers are using mobile phones for e.g. Kahoot (quiz software) in order to get an insight in how much the pupils master the learning content. Learning analytics give a good overview of the development of pupils. The learning content that the educational publishers offer vary a lot: sometimes the paper content is translated into a pdf-file, but the school is really looking for adaptive materials.

Currently they are experimenting with Learnbeat, ITS learning as a digital learning and working environment, and with an electronic learning environment (ELO) that is connected with SOMtoday.

Advantages according to the school are: digital tests can facilitate the teachers. However, learning goals are the primary goal for the school, on the basis of which pupils can get more adequate feedback.



Digital licenses (costs) are a limiting factor. There are cheaper materials available (secondary education content), where teachers can compose their own methods, but teachers are sceptical to that. Often there are also no tests available.

The school uses digipacks that are connected with educational publishers. In the pre-vocational secondary school they use the total packages where they can choose which parts they want to use. In vwo (the higher levels) this is more complicated (costs) because of the large number of subjects. There are several experiments though (e.g. with virtual reality) and the school supports that (with budget).

The agreement is that teachers differentiate mainly in the “roof tile” classes. Learning materials are being put in the ITS learning environment, so that pupils can always start working. Within this environment there is deepening, enrichment, additional exercise material. Presumably, the class is divided into groups (thus not full personalization), also because of the homogeneous classes in secondary education (in The Netherlands).

More and more teachers are testing formatively, the school now wants to map and promote that. Some (more innovative) teachers also develop their own learning materials. With permission of the school these teachers abolish report figures and use formative tests instead. Pupils thus receive individual feedback. Further cultural change is necessary within the school in order to spread such initiatives further than only a pilot phase.

The teacher's role will change. In the future Candea wants to start using tablets to make more information available to parents. Parents will receive updates about attendance, learning analytics and extra information given by the teachers.

The regular mentor meetings will be abolished as well, they will now be more on-demand. A possible disadvantage of this system can be that pupils no longer have to meet a clear deadline (“the report”). Here lies a role for the mentor who has to coach to pupils. Currently there is 1 mentor hour per week, from 2018 there will be 1 hour per day. Teachers only have an overview of the pupils’ progress in their own subject and the mentor has the total overview.

One of the biggest challenges will be to adapt to the students’ needs. Each pupil will have a different profile after the formative assessment. Intrinsic motivated pupils will thrive more. Other types of pupils will need more coaching.

Another issue the school faces is vandalism in the use of schools’ devices. Candea has experimented with Bring Your Own Device but did not continue with that because not every pupil would have access to the same software/learning resources.

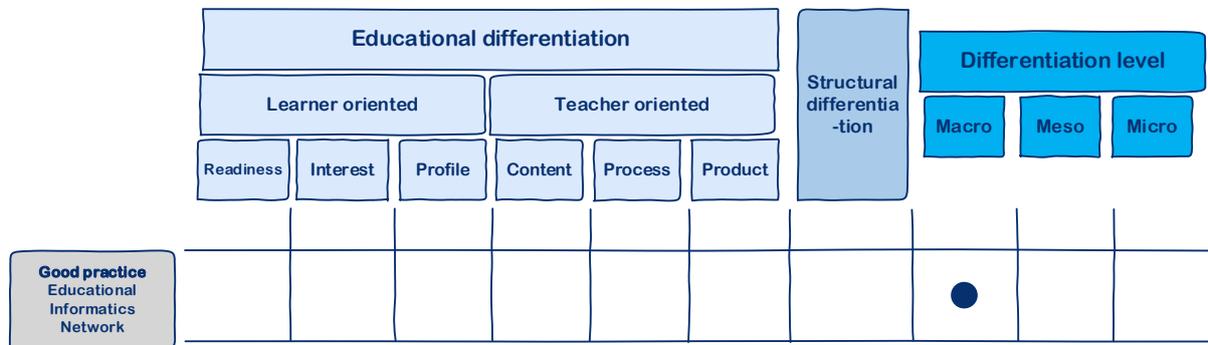


5 Educational Informatics Network (EBA)

5.1 Country of origin

Turkey

5.2 Educational analysis



5.3 Description

Gate to the future of education, Educational Informatics Network is an online social educational platform led by The General Directorate of Innovation and Educational Technologies.

The purpose of the platform is to enable the integration of technology into education by using information technology tools and supporting efficient use of material. EBA has been created to offer suitable, reliable and right content and is still being developed.

While many digital source designed by MEB and educational companies volunteering to share contents are published on EBA, students and teachers will also have the opportunity to offer the content they create. Therefore, there will be a pool of source which will be open to anyone keen on learning.

This will also open educational doors to everyone and provide a basis for carrying education outside the buildings. So is to say that it will be an integral part of the educational life. It will enable students to be self-determining and self-learning individuals. Besides, once students are united under EBA, they will be cooperating and involved in the team work with peers all over Turkey.

It will be easier to move from teacher-centred education to student-centred education. As a result, it will facilitate for the establishment of a country raising individuals who don't have parrot fashion and who filter and search for well-prepared sources, interpret information and create new information out of the current one.

Moreover, parents will be able to monitor and follow the quality of education provided to their children on EBA thereby contributing to the improvement and quality of education and have a bigger role than previous one. Now, we will be responsible for the education as a society, our contributions will grow and we will have to opportunity to shape our own future.



Having these above-mentioned characteristics, EBA is a candidate for offering opportunity for education contributed equally, to our students and the world in a broader sense, which is the main purpose of FATIH Project in Education. Covering all shareholders of education, EBA will grow, become stronger and develop thanks to all your contribution.

EBA COURSES

For Teachers,

It is designed for teachers to collaborate with their colleagues and share educational materials with students. Teachers can participate in discussions created by them or other teachers, share educational materials, assign tasks to students and follow tasks individually or oncoming events. They can also contribute to content pool with the contents they have created with content creation tools provided by EBA.

For Students,

It is designed so that students can study more effectively and get better results. They can work collaboratively with their peers and teachers, communicate with them and share educational materials on EBA Course. Also students can follow the tasks assigned to them by their teachers and study any subject anytime. They can continue sharing at school, participate in voting on EBA and attend to events. Most importantly students can continue learning outside school.

CONTENT MODULES

News Module

Designed for the purpose that good works created by teachers and students can be seen and heard by anyone and can be an example for better works. All kinds of activities and newsworthy activities are added here and published after being checked by EBA community mechanism.

A small wall calendar can be accepted as newsworthy as well as a cultural success. Students' success in sports, degrees gained from competitions, projects that schools got involved in... Shortly, every work done by you are newsworthy and worth-seeing.

Video Module

This module in Educational Informatics Network is designed for you to find educational videos that you can play in your class, in one place. In this module which contains videos supporting individual and collective learning in the fields such as course assistance, personal development, documents, cartoons, consultancy, professional training, you can find videos to use in from chemistry to mathematics and from languages to primary school life sciences. Moreover, videos to show on special days, videos created within social responsibility projects and documents to enrich your courses can be found here as well.

Thanks to this module which will be enriched with the videos sent by teachers and students, various videos will be created and learning will be a fun activity over time.

Image Module

Photographs chosen from the archive of General Directorate of Innovation and Educational Technologies are now on EBA image module to help you enrich the material you use. Planned to become a visual history of education with contribution of teachers over time, this module will contain



maps, graphs, animations and simulations prepared for your use. You will be able to enrich the imagery of your course, enable student grasp the topic easier with these materials you can use in your courses. Also, it will serve as a photograph archive that you can suggest as a reliable source for the students' assignments.

Audio Module

In this module, you can download audio-based course assistance, personal development, history and culture programs, audio books, foreign language listening passages on your tablets or music players. You can find audio books, educational radio programs, samples from our music archive to listen to while walking, exercising, traveling on subway, bus, etc. Also, you can upload here audio files that you've created.

Book Module

It is designed so that you can download course books as e-books (PDF) to your tablets or interactive boards. Also you can share e-books that you find useful on this module. Students will be able to access their books on their tablets without need to carry them.

Magazine Module

You can access educational, cultural and scientific magazines here. Moreover you can share the ones you own or find useful.

Document Module

You can find any documents on guidance, tests, planning materials and etc. on this module which you can upload your own documents. You can also contribute by leaving constructive comments as well as uploading documents.

CONTEST MODULE

It is the module where you can find information and exhibitions of old contests. Also you can find general information and information about participation here.

APPLICATION MODULE

In this module, you can find individual learning contents, contents supplied by leading educational content companies, associations, ministries and NGOs. Also there is a part called "For Teachers" where teachers can access free portals.

EBA Document Module

It is an application where teachers and students can store and share documents such as presentations, images, audio files, videos, etc.

e-Course Module

It is a module where you can access acquisition and evaluation tests. It is also the platform where complementary courses are managed.



EBA Store

Store for application which comes installed on tablets distributed within FATIH Project in Education. You will be able to download and update applications with EBA Store. This store containing study aids such as enriched e-books, magazines, dictionaries, calculators, educational and instructive games, audio stories is growing and its content is being enriched day by day.

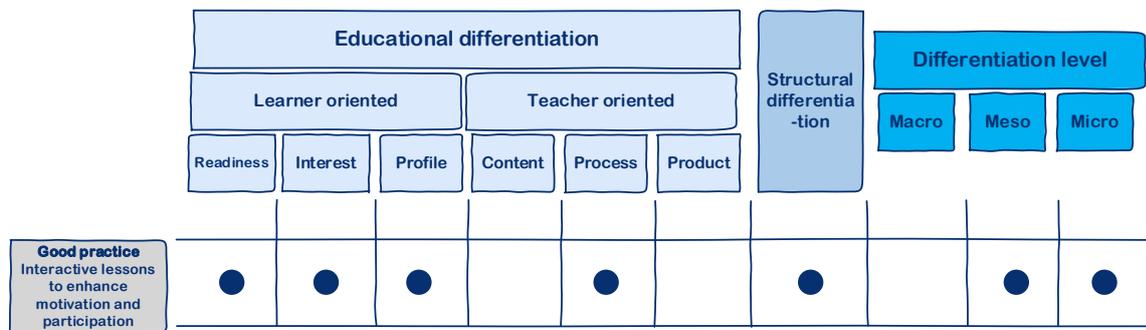


6 Interactive lessons to enhance motivation and participation

6.1 Country of origin

Italy

6.2 Educational analysis



6.3 Description

Mr. Risiglione teaches mathematics and science in primary education at the Istituto Comprensivo “Giovanni XXIII” (Acireale, Catania). He has been using the tablet for classroom differentiation since recent years and, through it, has seen the competences and the involvement of his students increasing.

He works in a school paying attention to the needs and attitudes of its students and aiming at the inclusion of each student into the learning path. In the last years, it has been improving ICT facilities by providing each classroom with tablets, interactive whiteboards, PCs and Wi-Fi connection.

He has created a virtual class on iTunesU where he and the students can share learning material and communicate also outside the classroom. Through the app, he can provide feedback to the students for their homework and answer to their requests of clarification and/or their doubts.



iTunesU logo

He has also prepared a science mid-term evaluation that has been uploaded on the app and he has corrected students’ work through it.

Along with the virtual class, the teacher uses the tablet also in classroom in his daily didactic, in particular in Mathematics. The main app used is GeoGebra2.



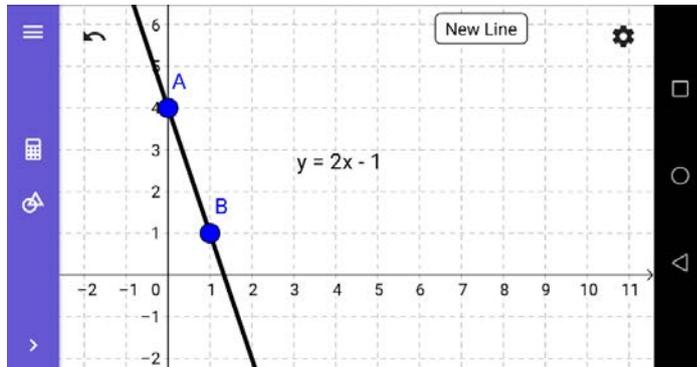
GeoGebra logo

The main reason why he started to use this app has been to involve students who were not able to do the exercises in the traditional way and showed a lack of interest towards the subject. By using the

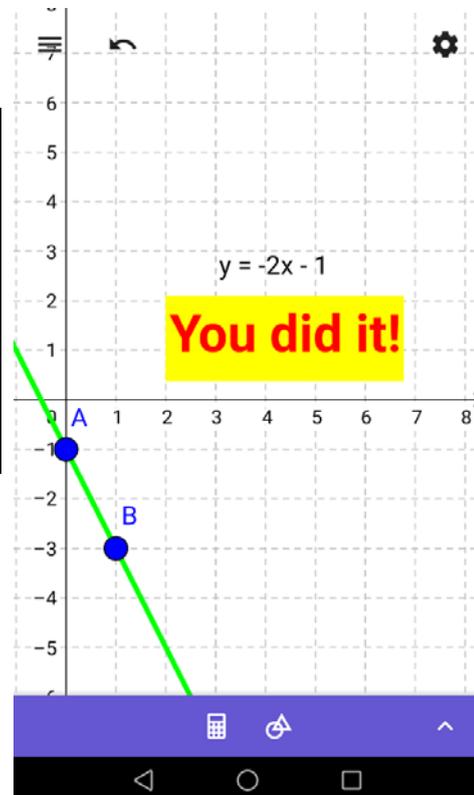


tablet and this app as well as others, these students got more confident with the subject and the exercises. In some cases, students with more difficulties became tutor of the others on how to use the app. Thus, the app has proven to be an effective tool to involve and motivate students who are not really familiar or interested in the subject.

Before using the app, he explains to the students what the app is about, how to use it and the methodology that will be used during the lesson. In this phase, he uses the interactive whiteboard in order to show to students also some examples of exercises.



Screenshot of an exercise on GeoGebra (1)



Screenshot of an exercise on GeoGebra (2)

Then, the class is divided in “islands”, namely group of 4-5 students divided according to readiness level, interests, attitudes, etc. on the basis of the activity or topic. Usually, for GeoGebra exercises the teacher tries to mix students with more skills in the subject and students with difficulties in doing the exercises.

The classes are heterogeneous and all students follow the same lesson. According to the kind of disability, the student is also followed by a support teacher who stays in the classroom. Even students with more serious cognitive disabilities (e.g., autism) remain in class and do the activities with the other students.

For instance, in a class, there is an autistic student who is also visually impaired. The support teacher facilitates his interaction with the other students and he can work on a bigger tablet that ease its view.

Some students, as in the aforementioned case of autism, do different activities and exercises, but always aiming at favouring their learning and interaction with other students is always guaranteed as they are also part of the “islands” and tutored by their peers.

As far as regards, science lesson, the teacher uses an interactive periodic table where students can learn easier about elements and their reactions.



Screenshot of the homepage of the interactive periodic table on Zanichelli website

By clicking on one of the elements, students can look at examples of how the element is used. For instance, if the student clicks on thallium, the app explains that this element is often used for herbicides, insecticides and rat poison.

Screenshot of the interactive periodic table on Zanichelli website when clicking on an element

Students can also do interactive exercises to memorise the elements on the table. For instance, they have to match the name of the element with the symbol.

On the lower left corner, there are three circles with the number of attempts done, correct answers and their percentage.

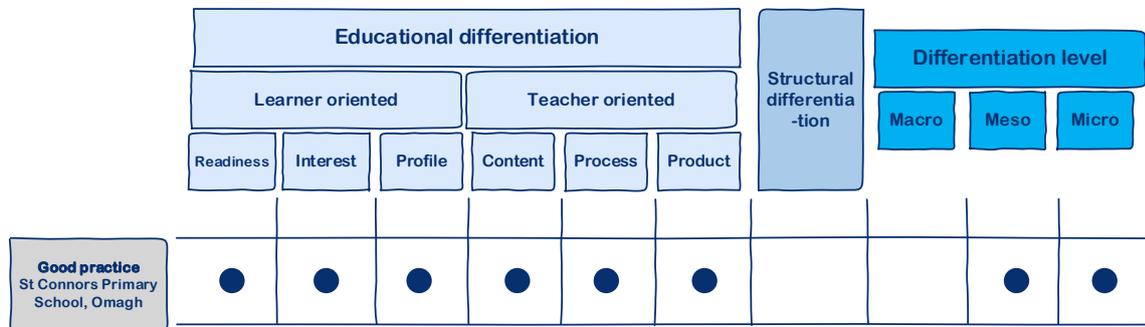


7 St Connors Primary School, Omagh

7.1 Country of origin

Northern Ireland

7.2 Educational analysis



7.3 Description

KEY FINDINGS

- If you provide opportunities for differentiation you automatically introduce inclusion.
- Students' prior knowledge and experience with tablets often exceeds curriculum demands.
- The use of technology is designed to increase knowledge regarding is subject area.
- Before leaving primary school all students are required to achieve level IV in the curriculum competency framework for ICT.
- Five E's: Explore, Express, Exchange, Exhibit and Evaluate.

CURRENT SITUATION

The application of C2k network infrastructure is used in conjunction with an initiative from iTech. A key set of competencies are required as part of CEA guidelines that include the five E's. These are, explore, express, exchange, exhibit and evaluate. Software such as scratch, puppet and iMovie are used to improve literacy and ICT skills. Additionally, students are encouraged to use audio files, audacity or pictures and text to explore a topic.

ACHIEVING DIFFERENTIATION AND INCLUSION

Differentiation is applied less in Key stage I where old laptops and one iPad are used for students to play with rather than being actively taught how to use them. The approach is meant to be one that is an introduction to technology rather than formal education about it. Differentiation and inclusion can mean different things and this largely depends upon the resources there are available as well as peer training. According to the curriculum students must have achieved a level IV stage in competency were the use of ICT is concerned. Ideally, before progressing to secondary school they would have achieved a level V.



Using tablet technology for inclusion is straightforward however differentiation is much more difficult. Time to plan for differentiation is a barrier. Additionally, apps that are used within the classroom as part of tablet technology are not often created with the curriculum in mind. This is reflective of the 'personalization' of technology for human use as a tool to enhance educational experience as Darling – Hammond (2014) indicates.

iPads are more interesting and user-friendly. There is a conflict between tablet technology and the system/infrastructure that we use to monitor students progression as part of the curriculum i.e. C2k. Additionally, using tablet technology can often take some time to setup. The majority of children find iPads are easier to use and it is becoming the norm to do so. However, it can be slow to introduce in the classroom i.e. passing the iPad around, ensuring everybody is logged in and using the correct count et cetera.

If you provide opportunities for differentiation you automatically introduce inclusion.

THE WAY FORWARD

Time, planning and resources are required in order to be very successful. This includes more human resources and more technical support. Further, opportunities for staff development in relation to the use of tablet technology would be useful. The use of tablet technology can be high risk and that if there is no planning can be chaotic. However, when there is clear planning that can be a high reward.

FILLING GAPS

Prior experience often exceeds the curriculum competencies. Children will often come to class with a very strong knowledge of how to use tablet technology. This supports the notion of 'poly-contextuality' and that informal learning, using technological devices, can operate in tandem with formal learning (Thorpe and Jones, 2014).

There is an inherent risk with app purchases and that they may not be suitable for the requirement of the curriculum. The use of external professionals such as those from AMMA has been very useful and has helped to integrate the use of tablet technology into your classrooms.

The advantages of tablets are that they help to increase literacy skills as well as listening skills. These are primarily conducted via apps such as puppet pals and telegamma that enable students' to develop core competencies and communication. The use of tablets produces a number of ICT skills however these are seen as secondary to the improvement of English, mathematics or an understanding of history. This is reflective of what Conole (2011, P. 397,401) termed as the 'functionality' of technology to achieve greater learning outcomes.

One teacher in particular uses QR codes in their teaching. Here, a series of questions would be provided for students in relation to an historical event for example the sinking of the Titanic. Students will then be given QR codes that allow them to express an idea surrounding a question. For example, the QR code may indicate a yes or no response. The teacher will ask the students questions and using a tablet gather the responses from the QR codes that the students are using and then collate the responses on the interactive whiteboard. Additionally, the use of green screen for films and music production is also present.

Technology has advanced and the changes very quickly and is very easy to be overloaded by the changes that happen. Additionally technology, given that it advances so quickly, can become outdated quickly and the use of technology often depends on the vision of the school for its students.



Students will also use iPads to collaborate with other schools. For example, when working on a project in primary seven students will (using interactive whiteboard and tablets) collaborate with other students and other primary schools in Northern Ireland. These communication exchanges form part of developing knowledge in relation to historical or cultural areas from the curriculum. Students will express their ideas to each other using the tablets to reduce the communicative distance.

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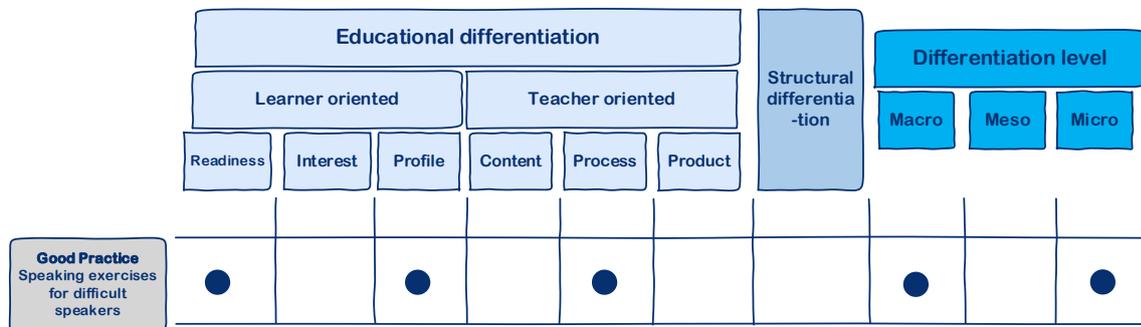


8 Speaking exercises for ‘difficult’ speakers

8.1 Country of origin

Belgium

8.2 Educational analysis



8.3 Description

Education in Flanders recently adopted the M-decree. This decree encourages students from special education to switch to standard education. Students with autism, for instance, thus find their way to standard education more quickly than before. They then participate in all educational activities, possibly with some extra support from a GON-attendant¹. Nevertheless, a number of assignments are not at all obvious for these students. Part of the students with autism for instance, find it very hard to speak in front of a classroom and make eye contact with their fellow-students. (student’s learning profile)

This good practice shows how the use of a tablet can lower the threshold in a speaking exercise. Hanne Rosius attended to a student with autism in standard education. When her pupil was in the third year of primary school, he had to give his first talk in front of the classroom. The assignment was to read a book, make a creative book review and present it to the class. Having to do this, implied more than one threshold for this pupil : he didn’t like reading, he didn’t like to be creative in the traditional sense of the word and he never talked in the classroom. He did like tablets, however. (student’s interests) Together with his GON-attendant and the class teacher, they investigated whether working with a tablet could be a solution to successfully fulfil the task. (product-differentiation). The school disposed of a case with 10 tablets.

¹ GON means ‘integrated education’. GON-attendants support students with specific educational needs in standard education.

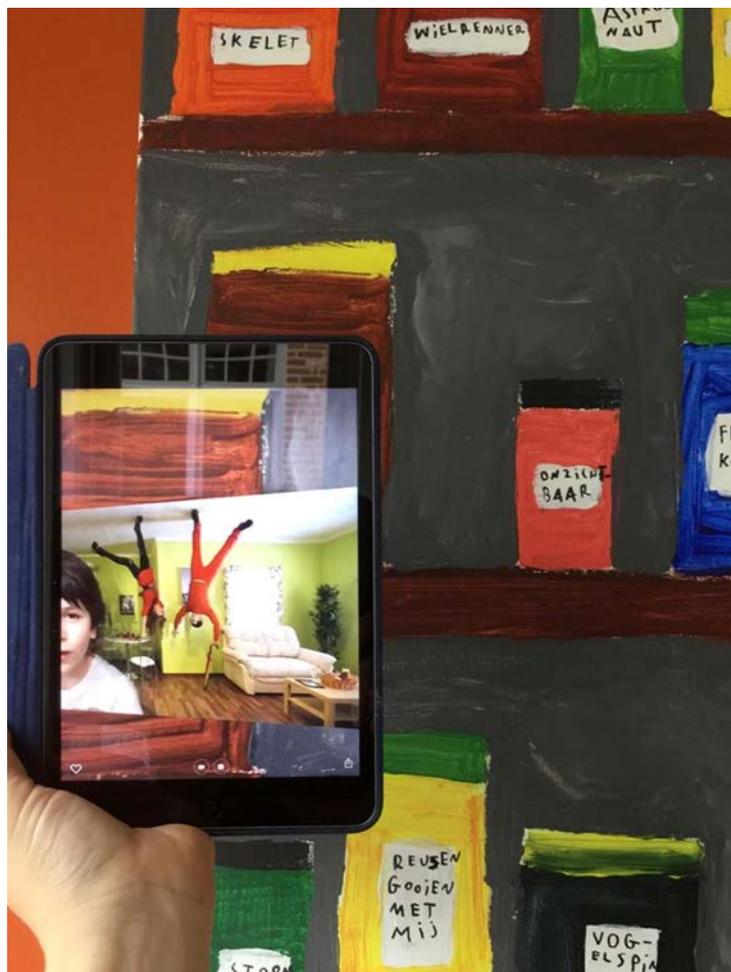


The student read the book 'the BFG' by Roald Dahl. In the book, the giant catches dreams and keeps them in his cave to blow them into children's rooms later on. During the GON-session, it was decided to paint the rack full of jars with dreams. The student used a tablet to record parts of his presentation, upfront, at home, in his familiar environment. He found it very reassuring to be able to record his presentation as many times as necessary, until he was satisfied with the result. Via the 'green screen' app by 'do



ink', he chose an appropriate background for the video. He found it very interesting to see how the app worked, which encouraged him to go on. Afterwards, with the 'arasma' app, the videos were put behind the different jars in the picture as augmented reality. The student did all of this autonomously. In this application, his strength in the field of tablet use compensated for his inferior speaking skills . (readiness)

At the time of the presentation, the pupil briefly introduced his work. The share of 'live' speaking in front of the classroom was thus limited to a couple of sentences. Subsequently, he distributed the tablets and the pupils could scan his painting, listen to different parts of his presentation and watch them. His fellow-pupils were impressed by the application's creativity and surprised with the 'augmented reality'. That's why they reacted to the presentation positively and the pupil could experience a feeling of success. This opened the way to other assignments.



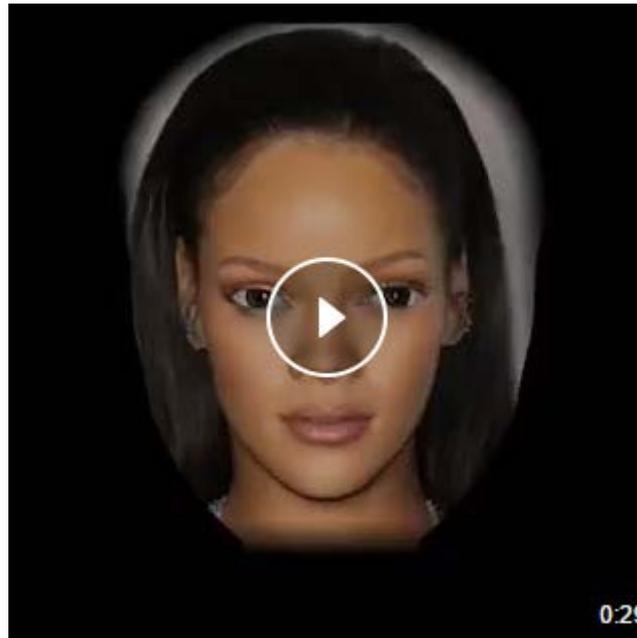
Painting enriched with augmented reality



Video made with green screen

Naturally, the fear to speak in front of a group doesn't only occur (and not always either) with pupils with autism. The example above inspired Ulrike Custers, a teacher in secondary education, to develop a similar application for newcomers with a foreign mother tongue in her classes. As a result of the refugee crisis, a large number of students who don't speak or understand any Dutch enter Flemish schools. They get separate OKAN-education the first year in order to learn Dutch (individualized program) before they switch to standard education. For these students, it is not at all obvious to speak in front of a classroom either. Convinced that the reason why students are afraid to speak in front of a group doesn't matter, Hanne and Ulrike decided to investigate whether recording speaking activities with a tablet could help newcomers with a foreign mother tongue to speak more freely. From this perspective, the application doesn't only adapt to the differences in interests and profile between students, but also to their speaking skills. (student's readiness).

Ulrike gives her class a short speaking exercise on a weekly basis. Students must choose a current event and talk about it in front of the classroom, based on the W-questions (who, what, where, when, why). About 6 times a year, this standard exercise is replaced by a speaking exercise with a tablet. Ulrike uses a variety of apps that offer the possibility to add words to an image or to an animation. An important condition when choosing the apps is the possibility for students to record again and again, until they are satisfied with the wording and articulation of their message. This also encourages giving feedback and adapting to it. Ulrike has a range of apps from which the students can choose : Tellagami, ShowMe, AdobeSpark, Aurasma, Fotobabble, Morfo and Book Creator.



Video made in Morfo

The different apps provide the students with sufficient variation and teachers can offer a selection of choices (student's interest). All the apps are used in a way to sufficiently support and encourage the student's speaking skills. The exercises are tackled with the OVUR-strategy (*note from the translator 'OPER : orientation, preparation, execution, reflection'*), since this is an important part of the curriculum and students are familiar with it.

- Orientation : this step is about the conceptualisation of the speaking exercise. Students choose a subject and brainstorm or look up what they want to tell about it. They can write this down in key words, gather images,
- Preparation : in this step, students think about the wording of their message. They choose the right words and build correct sentences to clearly communicate their message. It is important to foresee a feedback round, as that is the perfect opportunity to enrich the student's vocabulary, taking into account his or her specific educational needs.
- Execution : the students record their message by means of the app. This can be done in the classroom, in a separate room or at home. It is important for the students to feel safe enough to speak. For students with a foreign mother tongue, feedback starts playing a key role now. They can listen to the first recording with the teacher or with fellow-students and find out where it needs to be modified. In the second recording, students try to integrate this feedback.
- Reflection : the final product is being listened to in the classroom. Students try to map what they have learnt and what they should pay attention to next time.

This procedure is used by all students, not only the ones with a foreign mother tongue. Some students can handle OVUR (OPER) independently, others need support in one or some of the steps.

Together with Alessandro Voets (teacher in training), Ulrike developed an instruction file to guide the students through a speaking exercise. They can use this file for every exercise they make.



Ik, de nieuwe Stef Wouters? (nieuwslezer)

Hoe ga ik te werk?

Stap 1: Oriënteren – Wat wil ik vertellen?



Sla de kranten open en kies een interessant artikel naar keuze uit.
- Van welk nieuwsfeit moet je zeker op de hoogte zijn?

OPGELET!

Artikels als:

- 'Kevin De Bruyne schiet Manchester City naar halve finale Champions League'.
- 'Beyoncé en Jay Z verwachten tweede kindje.'
- 'Fietser uit Herentals aangereden.'
- ...

zijn misschien leuke of minder leuke artikels voor jou als persoon, maar hebben weinig tot geen echte nieuwswaarde. Je kiest dus artikels met nieuwswaarde voor FEDEREEN uit.

Na het lezen van het artikel vind ik de volgende woorden uit het artikel belangrijk om het verhaal te kunnen navertellen.

Wie?	Hoe?
Wat?	Waarom?
	Waar?

Stap 2: Voorbereiden – Hoe ga ik het vertellen?

Schrijf hier uit wat je als nieuwslezer **letterlijk** zal zeggen. Houd het beknopt, want als nieuwslezer moet je in enkele seconden (**max. 30 seconden**) perfect de bevolking kunnen informeren. Onderstaand voorbeeld kan jou op weg helpen.

Dinsdag 19 april 2016 (**wanneer**) het nieuws van uur.
Dinsdagochtend (**wanneer**) werd de Afghaanse hoofdstad Kaboel (**waar**) opgeschrikt door een zware explosie (**wat**). De explosie was het werk van een zelfmoordterrorist van de Taliban (**wie**). De zelfmoordterrorist liet een voertuig ontploffen (**hoe**) in een woonwijk in de buurt van het Ministerie van Defensie (**waar**). Het doelwit was het gebouw van de NDS, waar de Afghaanse inlichtingendienst kantoor houdt, naar aanleiding van hun aangekondigde lenteoffensief (**waarom**). Er vielen zeker meer dan 28 doden en 300 gewonden (**wat**).



Nu is het aan jou!

Stap 3: Uitvoeren – Ik lees het nieuws voor!

Nadat je jouw nieuwsbericht hebt uitgeschreven, wordt het wel eens tijd om het in te lezen en op te nemen.

Vraag aan de leerkracht waar je jouw nieuwsfeit mag opnemen. De opname doe je best waar er geen lawaai en/of pottenkijkers zijn.

Mogelijke apps:



TIPS!



Stap 4: Reflecteren – deed ik het goed?

Proces:

Hoe verliep het proces? Liep het vlot? Wat kan ik tegen de volgende keer best anders doen?



Product:

Hoe vind ik mijn ingesproken nieuwsbericht?

✓

✗



It immediately became clear that this application has a number of assets. First of all, there are few technical thresholds. The students all get a tablet, and handle it with care. The new device motivates them, the well-being in the classroom is high. The students want to test everything. They easily find their way with the user-friendly apps. Since Ulrike uses free apps, the duration of a video is limited. The advantage to that is that students need to communicate the core message briefly and to the point and thus have enough time to focus on language issues. In a standard speaking exercise, students often speak more without communicating content. A lot of students find it reassuring that the app offers the opportunity to record several times. The final product looks cool and students are often proud of the result. The tablet supports the students' language practice. The apps improve learning efficiency and have students pay more attention to articulation. After a while, students spontaneously started to ask for feedback when they needed it. One of the students with a foreign mother tongue often had the teacher listen to her first recording. She then asked for specific feedback which she tried to apply in a second recording. This application permits stronger students to work autonomously, so the teacher can invest more time in students with a foreign mother tongue. Stronger students that have finished earlier, can help giving feedback on the articulation (pronunciation) of other students.

A number of things also drew Ulrike's attention. Some of the students lose themselves in their enthusiasm for the tablet and the apps. They spend too much time exploring the different possibilities the app offers and therefore pay less attention to the assignment itself. Other students do take the assignment seriously and use the app and the tablet only as a tool for the speaking exercise. Together with the discrepancies in level, this leads to larger variations in pace in a class group. Using a timer is a solution for these differences. Some students are also worried about what will happen with the recordings. They don't want them to appear on social media. That's why Ulrike also integrates a lesson about media wisdom and netiquette in this application.

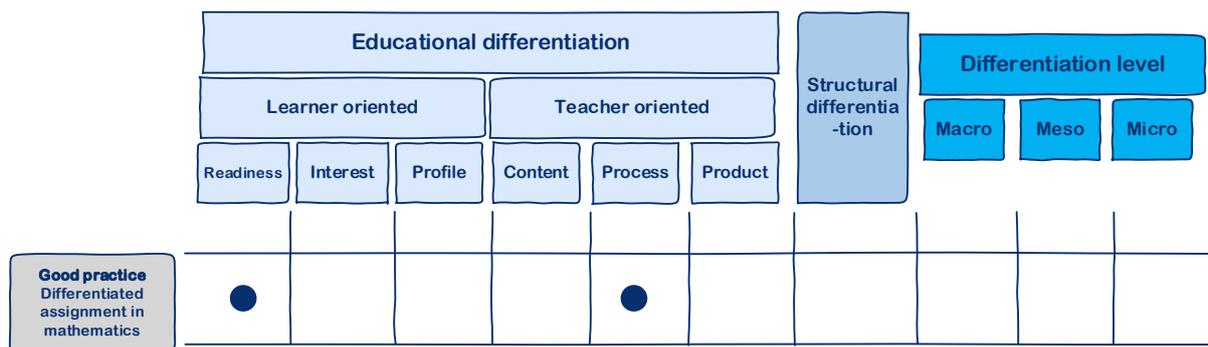


9 Achieving greater interest and pupils' success in mathematics with the help of tablets and differentiated assignments, marked by complexity

9.1 Country of origin

Slovenia

9.2 Educational analysis



9.3 Description

For many pupils' mathematics causes frustration and anxiety, and a lot of them perceive the subject as a needless burden. However, learning and understanding mathematics is anything but that, because it is vital for individual's overall development in today's complexed society. Not only does it build logical and critical thinking, it also helps to interpret the world and solve problems. By understanding mathematics, pupils strengthen their analytical skills and comprehension, as well as manage social inclusion.

Therefore, it is important to impart a positive attitude towards mathematics to individuals at the very beginning of their educational path. And it is the teacher who has a great role in doing so. A teacher can present the subject as something practical and necessary in life, and at the same time allow all pupils to succeed with a well-thought-out learning process. Studies show that a negative attitude towards mathematics is largely influenced primarily by abstractness of the subject and fear of failure, which derives from belief that special skills are needed to master this subject, which not all people have.

The mathematics and computer science teacher at the Osnovna šola Ivana Kavčiča primary school from Izlake, Slovenia, Iztok Ostrožnik, uses tablets in teaching mathematics with the purpose of increasing motivation for learning among the pupils, while at the same time encourages pupils' independence and desire to explore through the use of tablets. "Pupils often use mobile phones in their free time. Why not direct their enthusiasm towards using these devices in learning? The pupils



much rather solve calculations on their tablets than writing in notebooks. They are more active with a tablet computer, they do more research...,” says Ostrožnik.



The school owns 11 tablet computers, which are used in mathematics to teach new learning contents, for researching, repetition and reinforcement. Work with tablets is individual (when reinforcing and knowledge testing), and in pairs or trios when the teacher is introducing new learning content or when the children are researching it individually.

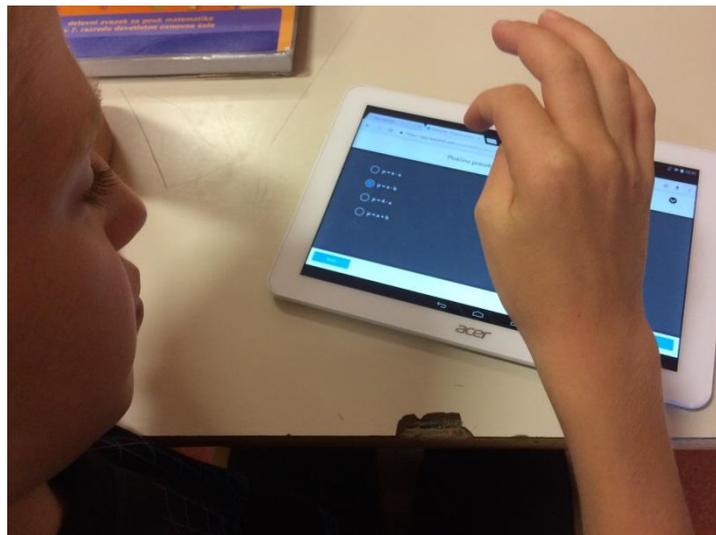
The teacher uses tablets as a device for enabling differentiation. He mostly uses the applications Nearpod, GeoGebra and QuickGraph. The teacher also uses online services such as QR codes, Kliker, e-textbooks, calculator, World Wide Web, Power Point and thematic tools that contain formulas.



New learning content is introduced from easier to more demanding facts, and the process is stopped earlier for some pupils than for others. In doing researching, repetition and reinforcement, all the pupils receive same learning materials, but reach different levels of difficulty. Every material they receive includes assignments, which are marked with a level of difficulty. “In particular, I believe it is important that the pupils receive same learning materials, since that is the only way for them to be treated equally,” he adds. “Assignments are arranged according to difficulty, I mostly prepare them myself, and form them into QR codes so the pupils can scan the code they want.”



While solving mathematical problems on tablets, for the most part the teacher is only mentoring. If any of the pupils encounter a problem, the teacher helps and guides them. For such pupils the content and time for introduction of it is adjusted, while the feedback is very important in doing so. Certain learning materials allow giving comments immediately, otherwise the teacher gives feedback to each pupil individually during or after the assignment. Remedial classes are available to pupils who do not achieve goals, the classes are conducted once a week, while the teacher is also available in his free hours when the pupils can see him individually. Additional learning assistance is available to pupils in afternoons as well.



According to Ostrožnik, this learning approach has a positive impact on pupils who have trouble achieving goals (for those the content and time of its introduction is adjusted), as well as on those who are gifted and have no difficulties in achieving goals. “The fact is that pupils are more motivated for work because of differentiated assignments and have, because they are using tablets and other interactive means, greater interest in mathematics in general”.

References:

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- video of a lesson (<https://video.arnes.si/portal/asset.zul?id=D2YIAFNhaSgVTetZRbjqAX6N>)

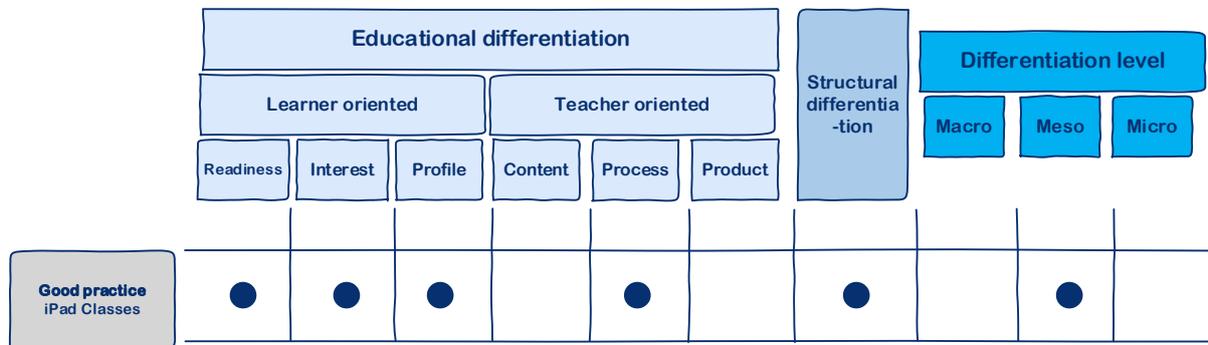


10 iPad Classes Sint-Ursula

10.1 Country of origin

Netherlands

10.2 Educational analysis



10.3 Description

Mark van de Mortel works at the Sint Ursula school. Sint Ursula is a rural school for secondary education in the Netherlands, located in Horn, a small village situated between the “cities” Roermond and Weert. The culture at the school is very relaxed. A lot of the teacher staff is from the local region, some have gone to school here themselves. Students often know the teachers from the local village, social gatherings, sport clubs etc.

Crime etc. is not really an issue at school.

Students are also mainly from the local villages, there are hardly minorities or immigrants at the school. That is not by choice or design, it simply is the result of the location.

Due to the Synthesis group (see below) ever more students from outside the region attend the school. Traditionally, our vision was defined by three words: Care, Prepare, Appeal. Although the words are no longer a part of the vision statement, it is still the basis of our pedagogical vision. There is an extensive care structure, for example via the Synthesis group, the school is open for children that are in need for some extra care. We strive to prepare students as good as possible for their future. We spent extensive time on career coaching, deanship etc.

And we try to make school as appealing as possible by providing modern, up-to-date education to our students.

When students enter the school, they first get assigned to groups for their first year (the “brugklas”) based on the advice provided by the primary school. By law the secondary school has to follow that advice. There are five different group types during that first year:

1. VMBO-T (lower general secondary education)
2. VMBO-T / HAVO (higher general secondary education)
3. HAVO / VWO (pre-university education)
4. VWO+ (pre-university education plus)
5. The Synthesis group



After that first year, they are split into:

1. VMBO-T (lower general secondary education)
2. HAVO (higher general secondary education)
3. VWO (pre-university education)
4. VWO+ (pre-university education plus)

The Synthesis group is a special needs group of 10 to 12 students in year 1 and year 2 (in the future possibly also in year 3) mainly for pupils with an autism spectrum disorder (but not exclusively, also for other special educational needs). The goal of the group is to have the students integrate in the regular groups within those first two years.

All students (at all levels) can choose to be assigned to either an “iPad class” or a “paper book class” depending on their own preferences.

Teachers can choose to teach in an iPad class or a paper book based class. This also means that the teachers for the iPad classes are there by choice and interested in the pedagogical use.

All this accounts for a lot of organizational challenges, but the school manages. It has become business as usual, it is maintainable and we’re still expanding with steady pace (no big bang).

The school was built in 1974 and that is noticeable in the design (small classrooms). In some areas, like the Studyzone, there has been redesign to cater for the new pedagogical vision. Another example is combining two classrooms into one bigger, different use of color and furniture in existing rooms.

The ICT infrastructure in the school is modern. Currently there are 12 groups that use the iPad for 1-on-1 education. The other 45 groups still use paper books. As of June 2017 the school is officially an Apple Distinguished School. There are only two other schools like that in the Netherlands.

There are about 300 iPads in use, the Studyzone (library) has an additional 60 iPads for lending by students and 15 Windows laptops. Teachers also use Macbooks. But the school has no intention of becoming an exclusively Apple oriented school. Almost every classroom has got a fixed (Windows) PC, a data projector and/or smartboard. In those rooms, Airserver is used to enable streaming of iPad screens to the data projector. The school is looking at experimenting using Chromebooks in the Studyzone since they expect the maintenance costs to be lower than the Windows laptops.

The school renewed and improved the school wide Wifi network two years ago to support the increased use.

Our differentiation practice is firmly grounded. Stakeholders involved in our differentiation practice are:

- The board
- Parent/teacher board etc.
- Parents
- Organizations, sports clubs, companies in the local areas
- City hall



To understand our use of tablets, you need to distinguish between the regular iPad classes and the Synthesis group:

Regular iPad classes

In the regular iPad classes we try to cater for differences in students as much as possible right from the start by providing motivational education and new technology. Passiveness by students was one of the main criticisms by teachers before.

Using the tablet, we're able to get the outside world into the school. Teachers create own material (videos, interactive books), use existing apps, and can provide students with more tailormade education. Students use the iPad as one of the tools to create reports and other class reports (although they usually can choose to use other means than the iPad). In the regular iPad classes, the students are always together in the same group. They move from classroom to classroom between courses.

Synthesis group

The students in the Synthesis class use the iPad in a different way. There, the teacher provides them with a set of apps and a set of learning material at their own level. There activating the students isn't the main purpose, but differentiation on level is. Structure, working according to plan is important there. This would have been much more difficult without the iPads.

In the Synthesis class, the students have a fixed classroom and a single teacher (except when needed for specific courses).

An exception is made when a student takes part in a regular class for one of more courses, then that student goes to the classroom where the other students also are. This makes it very visible for all students how a student from the Synthesis class step by step works on full integration in the regular classes. The other students know that and in general these students are easily accepted in the group.

Teachers use a diverse set of pedagogical teaching methods. To support those methods, they use both material created by publishers and material that they create themselves.

They also use apps on the iPad, but the focus is on the pedagogy of the teacher, not the apps.

When there is teacher centered instruction, they all use the same material. Often, when doing project, assignments or reports students can choose the way they do that (on the iPad, using tools that they choose or using paper or other materials).

A teacher can also use the "app dice" where a student throws a dice which then determines the tool he/she needs to use.

In the Synthesis class, the amount of choice is purposely kept low (distraction) and is teacher structured.



We use iCoaches (students from higher years that support the juniors) during the mentor hours with regards to technical problems / use of the iPad.

For homework planning, overview of class roster, study planner, we use "Magister" a system used by a majority of Dutch schools for secondary education. This system isn't optimized for use on the iPad. Students also use the "1-view calendar". It is available in paper based version and an iPad version. This enables them to do scheduling.



The analysis and comparison of the iPad class and the paper book class shows differences, in concentration and focus on the task at hand. The students appear to be more enthusiastic (even when the end of the year approaches), but that is not clearly visible in the statistical results.

A pilot with formative assessment is planned for next year. This also involves training for teachers and reduction of the number of summative assessments.

There is also a plan to start to use digital portfolio's, or in case of physical education: sportfolio's. However, besides these initiatives, formative assessment hasn't been a main focus point yet so the formative assessment does not influence the choice of the teaching technique yet.

Working with learning objectives is also an area where we want to improve. At the moment the content for a course is leading. We haven't noticed btw that new teachers, even the ones fresh out of school, are used to learning objectives. So even there, training is needed.

The evaluation method is the same for all students. There has been a pilot where students could choose the method used for a test (MC or open ended questions), that wasn't large scale yet, but is something we want to follow up on.

A challenge is the needed time (money) to do that. The school is located in an area with a decreasing number of potential students (up to -30% by 2020). Budget is linked to number of students which leads to new challenges.

Use of IT for remote teaching is still in its early stages, although it is used for individual students that cannot attend school for a period of time using a system called "Klassemaatje" provided by "KlasseContact", an initiative of a big Dutch telecomprovider. But this is also an area where we see possibilities.

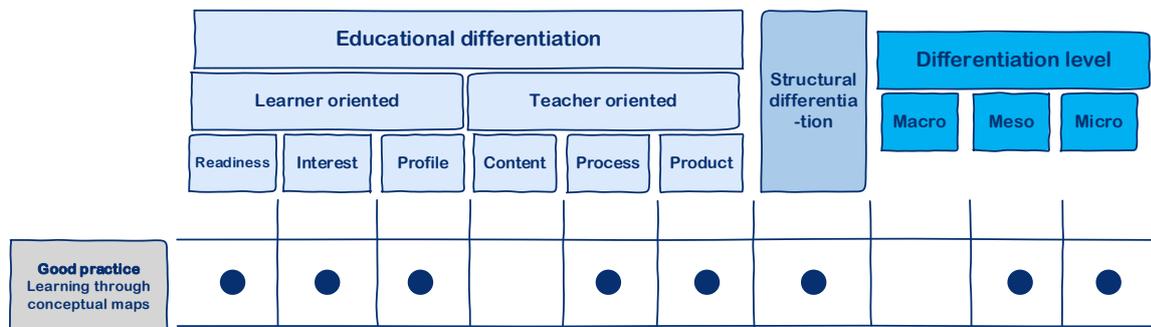


11 Motivating towards learning through conceptual maps

11.1 Country of origin

Italy

11.2 Educational analysis



11.3 Description

The interviewee works in the Istituto Comprensivo “Giovanni XXIII”(Acireale, Catania), which is a resource for the area where it is located because of the lack of aggregative and associative centres for young people except the parish community.

The institute believes that the school is a community of continuous and comprehensive learning where the overall wellbeing of the student should be guaranteed. It is really active on counteracting early school leaving at different levels: material, intellectual and motivational. This is the reason why the school promotes the use of alternative teaching techniques including the use of tablet and other ICT devices.

In the class where the interviewee teaches, there are 6 students with learning disabilities and 2 with other kind of disabilities. The use of the tablet as a teaching tool born from the need to actively include these students during lessons and it has proven effective in doing it. It allowed to increase their attention and motivation to the didactic through group researches and development and creation of learning material.

The first step has been the realisation of a virtual class on Google Classroom where the students can share material, upload the learning material developed as part of their tasks, ask to the teacher further clarification and feedback, receive further learning material from the teacher.

Each student has a google account and access to the platform.

Due to the peculiarities of each student and the different cognitive styles, each lesson is made up of different moments:

- Overview of the topic to be addressed
- Projection of images, documentaries or movies



Google Classroom logo



- Group work: elaboration of a particular aspect of the topic suggested by the teacher
- Exchange of information among the different groups to have a complete framework on the topic

Also the learning objectives are set according to the student’s characteristics, attitudes and readiness levels.

The class is divided into 5 groups with 4-5 students each. Each group has a student, called tutor, helping and supporting students with difficulties both in using the iPad and in the comprehension of the lesson. Everything is done under teacher’s surveillance who moves around the class during the whole lesson. In this way, she can monitor students’ work and their participation to the activities. Furthermore, the interaction between teacher and students is facilitated and eased in setting different from the traditional one (frontal lesson).

Lessons are performed through the use of different apps, in particular the ones to create conceptual maps.

According to the interviewee, the most effective app to favour the students’ inclusion is Super Mapped (<http://www.supermappe.it/>). It allows to create conceptual maps by using different kind of sources (e.g., e-books, PDF files, websites, videos, documents, notes) in the same page where the map is being built.



Super Mapped logo

The app could be used both in the tablets and in the interactive whiteboard.

Another app that the teacher uses is Popplet Lite which can be used on iPads.

The conceptual maps are developed and realised within the groups but also autonomously. They have been proven to be a very useful way to memorise concepts and to learn in a more intuitive way by combining written tests with images or short videos.



Popplet Lite logo

Along with the conceptual maps, the teacher also uses Quick Video, an app to create videos on an easier way. Usually, each group is assigned with a topic to be addressed during following lessons. Groups can also create a video to be showed in class in order to

explain the relevant topic to the other students.



Quick video logo

All the works realised in class are then uploaded on the shared Padlet of the school in order to be

available for other students and for future lessons.

As per teaching techniques, also the evaluation methods differ. Students can be evaluated through class discussions, written elaborations, multiple choices tests and group work. Except class discussions, all the other evaluation are done also through the iPad and the teacher can correct them directly from the platform.

Since the beginning, students have been improving their abilities in learning different kind of topics, but more than that their motivation and interest has increased. The playful side of these teaching techniques has eased the learning path of involved students as well as teacher’s work.

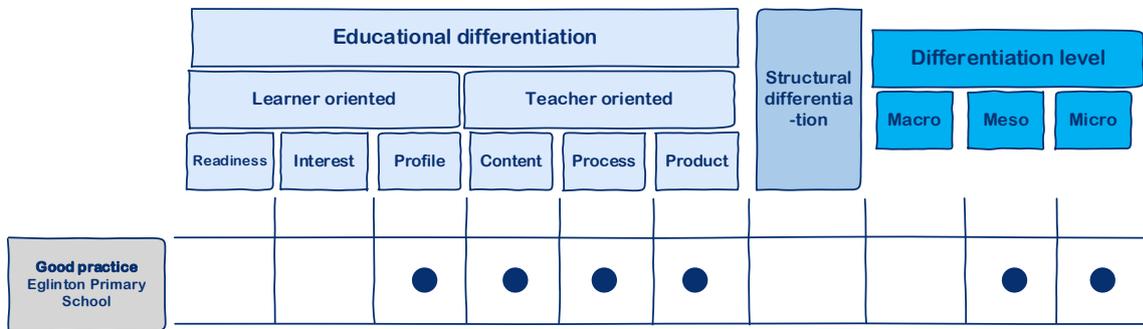


12 Eglinton Primary School

12.1 Country of origin

Northern Ireland

12.2 Educational analysis



12.3 Description

CONTEXT ANALYSIS

The school Eglinton Primary School (Co Londonderry, Northern-Ireland) is a medium-sized (218 pupils) village primary school. The class of teacher Ms Mc Kendry is a mixed ability group, aged 6 to 7 years. The class culture/atmosphere is one where all the pupils are focussed on doing well and progressing, with generally strong support from parents.

There is no grouping strategy across the whole class or curriculum, but for reading and maths, the pupils are grouped based on ability in that respective area of the curriculum. The grouping is actioned by table, with pupils of similar reading level working from a table with other pupils of similar ability.

Devices available throughout the 7-class school are:

- 32 Chromebooks
- 10 iPad Airls, for youngest classes, out of a total of 30 across the school population of 218 pupils

Every classroom has a touch-based interactive whiteboard, which is used extensively. There is Wi-Fi throughout the school.

Furniture is a cluster of desks arranged in squares, with eight places set at each cluster. Pupils spend time at different clusters for different tasks, not always sitting beside the same classmates.

The pedagogical vision of the course is simply to assist every pupil to achieve the target set across Northern-Ireland for pupils in the same school age grouping, but also to achieve their personal best.

DESCRIPTION OF THE PRACTICE

There are two ways that mobile devices are used for learning:

- A bought-in accelerated reading, called Accelerated Reading, programme, and



- in progressing through the ICT curriculum laid down for all Northern Ireland primary schools.

Accelerated Reading:

- a) pupils are initially assessed in teacher planners to identify more able children (MAC). These work on stretching reading and vocabulary skills.
- b) the pupil reads a text to suit their ability, chosen by the teacher, following pupil assessment by See-saw tool to assess reading level
- c) Use an Accelerated Reading app to, by question (10 off) and answer, gauge level of comprehension the pupil has of the book, thereby gauging progress in reading
- d) Then selects next books at appropriate level for the pupil to select to read
- e) Process is recycled.

If the pupil's progress is good then they are stretched, if less than expected they keep reading at same level or get additional support.

This accelerated programme has brought definitive benefits. The school had 33% of pupils underachieving in reading. Over 2 years of the accelerated programme, this has shrunk to 12% underachieving.

The system also allows parents to connect to see what their child is doing, what book(s) they are reading and how they are progressing.

The school has delivers a Using ICT (UICT) curriculum that is mandatory across all Northern Ireland primary schools. UICT has a well-defined specification of tasks to be achieved and progressive levels of achievement. Mrs McKendry uses mobile devices to allow the pupils to work with a degree of independence through well-defined tasks that will allow achievement of tasks. The structure for the work to be completed and the support resources mean that able pupils can, when finished initial tasks, progress onto additional tasks that stretch them individually. There is a target to achieve the UICT curriculum at level two by the end of year 3. If a pupil in Mrs Mc Kendry's year 2 can progress to Level 2 in year 2 then this will be facilitated, though the availability of the mobile devices and the support and guidance of Mrs McKendry.

Children who do not reach the expected levels in reading are put into a "boost" group that gets together once a week. In this group, there is a focus on their specific area of difficulty and different strategies are used to help them. The class teacher takes this group for 1 hour to focus on progressing the difficulties, whilst the rest of the class join a class taken by another teacher to work on with tasks allocated to them.

CONTENT-differentiation

The learning materials are a mix of procured, bought or obtained from central public-funded support agencies, and developed by Mrs McKendry. The mobile devices are available for individual pupils to work though defined tasks at specific time slots in the class timetable.

For both elements that demonstrate support for differentiation there are learning materials to meet pupil needs. For accelerated reading, there are materials to stretch the more able pupils, as well as material to provide additional support for the less able.



As referenced in the second example cited above, differentiation is achieved by differentiated outcomes developed over creative tasks. These tasks are part of the UICT curriculum. This curriculum has many elements and levels, spanning over the 7 years of primary school. The structure of the programme is clearly laid out by Mrs Mc Kendry, with tasks cross-referenced to the specification of the UICT curriculum, in her role as ICT coordinator. This makes it easy for teachers and pupils throughout the school to continue approaching additional, higher end tasks when they have finished a previous task.

Thus, the more able pupil is challenged to achieve more by stretching themselves, through undertaking tasks that have scope for more than one level of outcome or final product. As part of the learning, the pupils who complete the higher-level ICT tasks share their completed work with classmates, thus developing communication skills, whilst adding the knowledge of their peers.

ICT lends itself to a wide range of additional skill development, including higher-end resource development using tools for working with text and audio-visual digital assets.

PROCESS-differentiation

To achieve process differentiation more complex tasks are issued, to stretch the MACs, with some specific but limited explanation first. The tasks are selected such that they facilitate a wide scope for developing practical skills without a significant element of teacher intervention. For the teacher, the ease of ability to set further challenging tasks for the MACs is built into the prepared task specifications. These are available on the school-wide network in advance of actual need, easing the transition by a pupil from the standard task set to the whole class to further task for a MAC.

For accelerated reading guidance and coaching are undertaken part by device and part by teacher. The device gauges progression in reading and signposts next steps. Where there is some difficulty in doing the actual work the teacher will intervene. For pronunciation, teaching is through linguistic phonetics and where that doesn't work a key words approach is used.

In the case of the UICT work, there is demonstration by the teacher, with practice on the mobile devices the means by which pupils get to develop skills, by creating digital content to a specification.

In both cases assessment is clearly built in to the work. The accelerated reading work produces a clear indication of progression through the end of book test and subsequent scoring. There is a target score of 85% for each test, with achievement of this score being specifically noted, supported by recommendation for progression to a more challenging next book.

Appropriateness of teaching technique is determined by the learning outcomes. So, for example, in the case of a LO that is focussing on developing a skill, the teaching technique will involve explanation and demonstration. Other type of learning outcome will also be the main influencing factor in determining the teaching technique.

PRODUCT-differentiation

Achievement of the learning objectives are clearly evaluated by:



- For accelerated reading the end of book test score and recommendation of progression to a more challenging book
- For UICT, further practical tasks issued, assessed and cross-referenced

Evaluation method is the same for all pupils.

There is greater success for the MACs as they gain a higher level of reading ability. The school reading capability has gained overall over a period of 2 years, from being 33% below the national reading ability on average to being 12% behind. The relative progress of MACs, average pupils and low achievers has improved. Whilst there are no specific metrics for the MACs their accelerated progression contributes to the school's overall improvement

STUDENT-characteristics

The pupil's readiness, interests and learning profile are all addressed with the differential approach, both with the accelerated reading and ICT work. In both kinds of activity, they clearly must show progression at one level before they can progress onto further levels. Reading progression is based on understanding vocabulary.

ICT exercises allow the pupil to typically have a little demonstration before getting down to actually applying skills. At times some supportive intervention is required by the teacher, but often the pupils are able to work out for themselves how to apply software functions without extensive tuition or demonstration.

For both types of activity, the pupil's interests help to motivate. They can pick books of a suitable level from a selection, based on the genre of stories they prefer. For the ICT work they are typically given a brief to use advanced functions to create some digital content, the subject matter of which the teacher strives to reflect the interests of the pupils.

The key shareholders are: teachers, Principal, ICT Coordinator, parents (they can log onto the Accelerated Reading system and see the reading progress of their child), classroom assistants, central educational support organisation (setting the UICT framework in conjunction with schools).

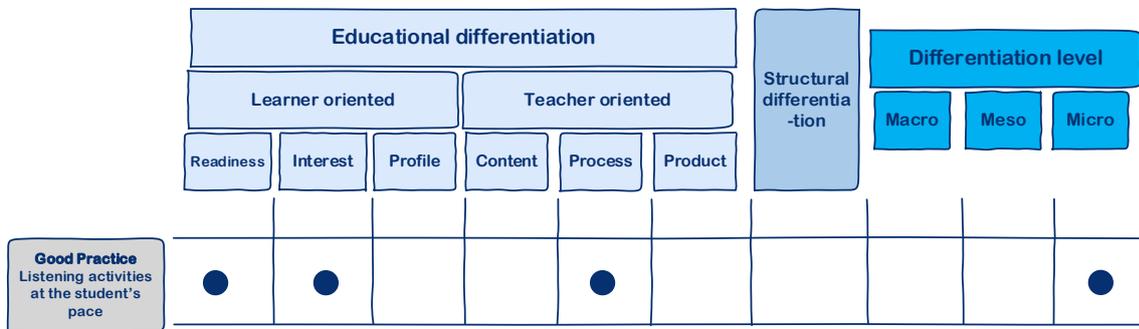


13 Listening activities at the student's pace

13.1 Country of origin

Belgium

13.2 Educational analysis



13.3 Description

Listening represents an important part of communicational skills, in native language as well as in foreign language education. While listening activities are a piece of cake for one student, they can be a really obstacle for another one. The conventional approach organises listening activities on class group level and each student hears an excerpt as often as any other student. Stronger students then have to listen to an excerpt twice, while they don't really need it. For other students, hearing it twice might not be enough and they might succeed if they could hear it one more time. Another category of students might only need to listen to some of the excerpts for a second time. (student's readiness). This good practice responds to this problem by giving the students the opportunity to listen to the excerpts in a flexible way (process – differentiation).

Sarah Awouters is a teacher in the 7th year of vocational education. Her group is very heterogeneous. Students who spent their entire secondary school career in vocational education, have never had any English lessons. Other students coming from general or technical education, have had a couple of English lessons a week for a couple of years. (student's readiness)

To adapt to these differences, Sarah uses the EDpuzzle app (<http://edpuzzle.com>).

Edpuzzle is a free, device-independent tool that can be used to shorten videos and provide them with sound recordings, open questions, multiple choice questions and comments. After the teacher has edited the video, he or she creates a virtual class in EDpuzzle and adds the edited video to that class.

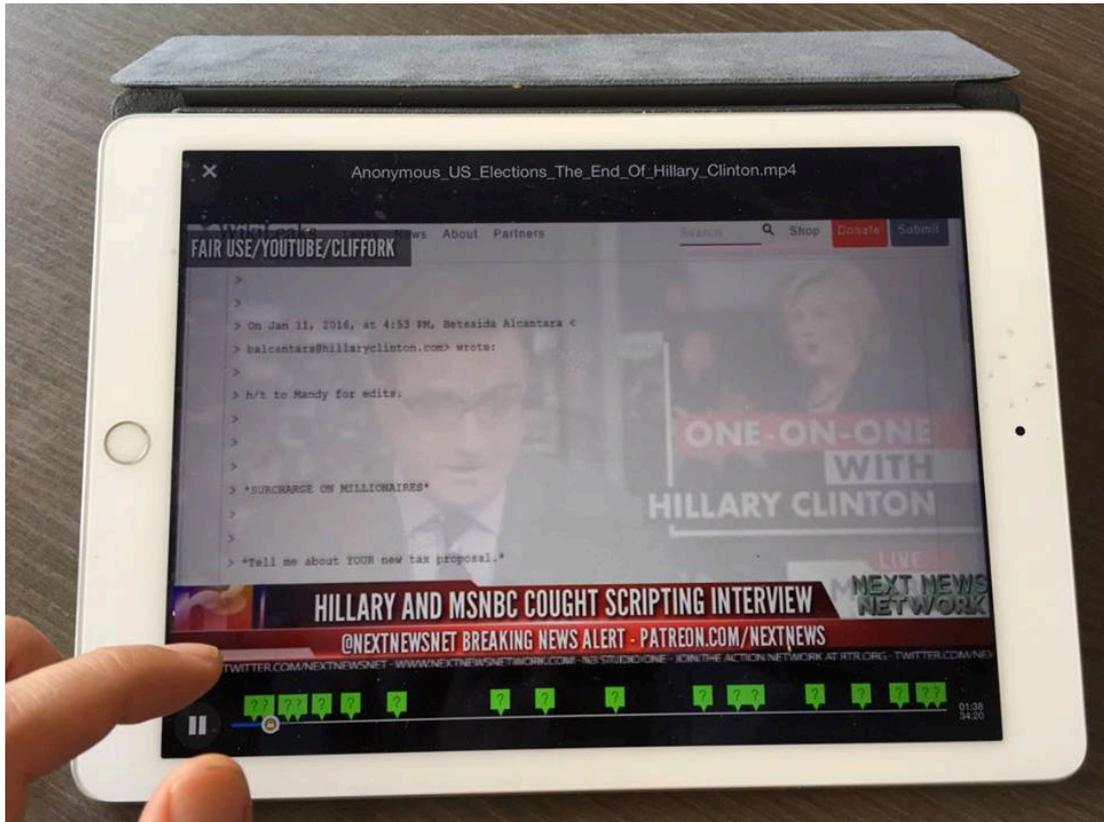


After the teacher has edited the video, he or she creates a virtual class in EDpuzzle and adds the edited video to that class.

Subsequently, a class code is generated. When the students open the EDpuzzle app, they can log in with this code and watch or listen to the edited video and answer the questions. EDpuzzle offers the possibility to click 'watch again' after every question to watch the last excerpt once more before

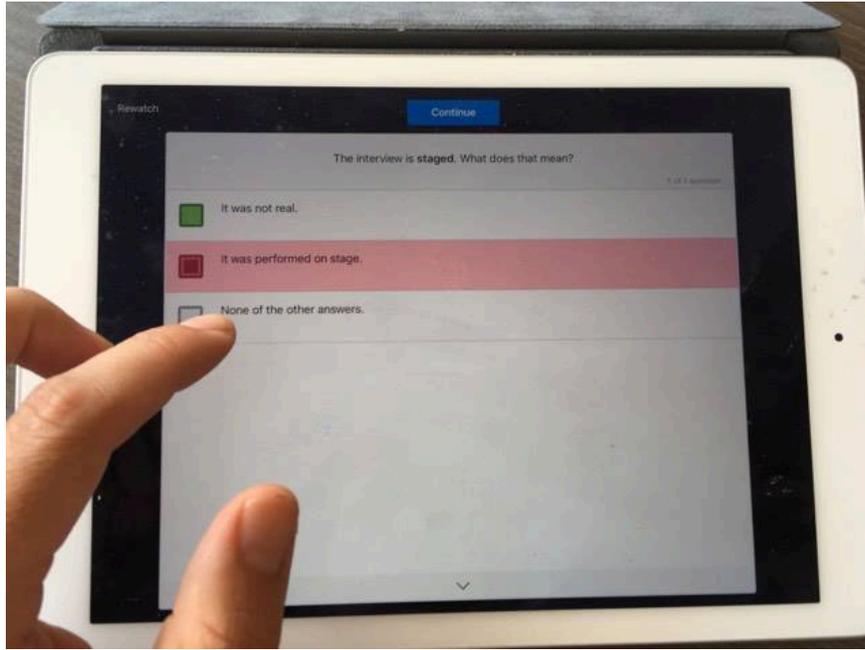


answering the question. This makes it easy for students to determine their own pace. (student's readiness and profile)



Video with questions in EDPuzzle

Via the app, the teacher gets a structured overview of the students' scores, the answers they gave and the number of times they watched a certain excerpt. He or she can evaluate the answers to the open questions and give comments. Afterwards, when the students log in again, they can see their scores and the feedback the teacher gave them.



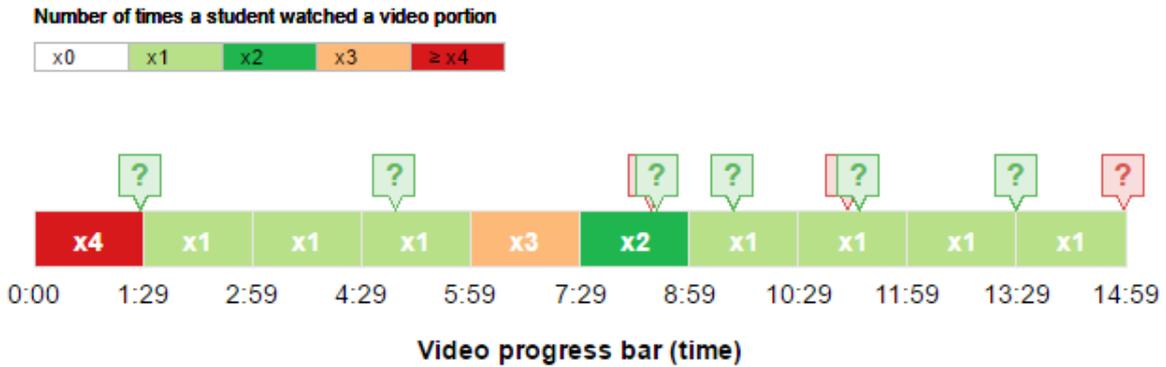
Immediate feedback for multiple choice questions

Via a simple colour system the teacher can quickly assess which students have inadequate, sufficient or very strong scores. This offers the opportunity to proactively adapt to the differences between students during the next class.

Tine Lenaerts	✓	0 /100	3 years ago	2 years ago	↻
Sanne	✓	0 /100	3 years ago	2 years ago	↻
Davide Secci	✗	44 /100	3 years ago	-	↻
Paulien	✓	67 /100	3 years ago	2 years ago	↻
Sofie	✓	67 /100	3 years ago	2 years ago	↻
Bo	✓	67 /100	3 years ago	2 years ago	↻
Ahlam Boucharati	✓	67 /100	3 years ago	2 years ago	↻
Bart	✓	67 /100	3 years ago	2 years ago	↻
Alessandro	✓	67 /100	3 years ago	2 years ago	↻
Michiel Van Emptem	✗	78 /100	2 years ago	-	↻
Gwendolien Mommens	✓	89 /100	3 years ago	3 years ago	↻
Arne	✗	100 /100	3 years ago	-	↻
Nesibe	✓	100 /100	3 years ago	2 years ago	↻
Bieke	✓	100 /100	2 years ago	2 years ago	↻
Iralia	✓	100 /100	3 years ago	2 years ago	↻

Overview of the students' performance for the teacher

Sarah testifies: 'I mainly use it for English-spoken video excerpts which I use as listening activities. The questions vary from open to multiple choice questions. I always check how many times a student watched a certain excerpt before he or she found the right answer. Afterwards, the exercise is discussed orally and we jointly try to find out what exactly caused the student trouble.' Students sometimes need some encouragement to watch an excerpt twice, but when they do, they find the right answer. Sarah's students like the fact that they get the opportunity to watch excerpts several times. The more they watch it, the more they learn, which makes it a win-win situation for both students and teacher.



The progress bar shows how often a student watched certain excerpts and which questions have been answered correctly or wrongly

Sarah applies her way of working to her evaluation. 'Because the school still works with a –to my opinion- outdated system of written exams on class group level for English, I wanted to focus on all skills by introducing an oral exam. Before the exam, students had to watch an episode of National Discovery via EDpuzzle about the future of trains or a news flash about the scandals in which Hilary Clinton was involved. They could choose the subject that interested them most. After watching one of these episodes, they had to choose a corresponding text and read it in preparation of the oral exam.' (learner orientated classroom differentiation, student's readiness and interests).

Sarah says : 'There was one big advantage to this. Based on the results in EDpuzzle, I could deduct which questions they found hard and how many times they watched certain scenes before finding the right answer. I used this information to determine the questions for the oral exam after which the text was linked to this episode.' (teacher orientated classroom differentiation)

Written reflections afterwards show that students had really enjoyed this way of studying before an exam and that they had found it really interesting.

Sarah finds the app very user-friendly, for teachers as well as for students. Sarah's approach does require, of course, that each student has access to the app and that headphones are available for listening.

The idea to work with EDpuzzle to practice listening skills was shared via the mooc by Tablio (www.mooc.tablio.be). Teachers from different educational levels and different studying areas picked up the example and applied it in their classes. The examples below prove that the described application is transferable.

Nathalie Van Gossum integrated listening skills in her social education classes and taught a lesson about the search for a job. This way, students trained their listening skills at their own level, but at the same time found out some interesting information about looking for a job.



Loopbaanportret van werkzoekende Rosita by Nathalie Van Gossum

Wat is VDAB?

Vlaamse Dienst voor Arbeid en Opleiding

Vlaamse Dienst voor Arbeidsbemiddeling

Vlaamse Dienst voor Arbeidsbemiddeling en Beroepsopleiding

Submit Skip Rewatch

Career portrait of job-seeking Rosita

Nathalie also uses EDpuzzle to tackle shortcomings when it comes down to numeracy skills. She has a couple of students with arithmetical problems. Those who haven't quite understood the explanation during class, can take another look at the instruction that was given during the lesson afterwards. Thanks to some additional questions, students can independently practice the material at home or in the classroom.

een breuk nemen van een getal by Natalie De Baets

Een breuk nemen van een getal

Hoeveel kom je uit wanneer je $\frac{3}{4}$ neemt van 24?
Pas dezelfde werkwijze toe!

Submit Skip Rewatch

Video instruction numeracy skills via EDpuzzle

Olga Kooistra made an application for pre-schoolers. She recorded a video in which she read from a picture book. The children get to hear a question and have to choose the right answer by clicking the right picture. This application has been developed to improve listening comprehension and enrich the children's vocabulary. You do need a few tablets in the classroom to put this application into practice. Some of the pre-schoolers might choose to make this exercise in a corner of the classroom. Moreover, this is a perfect way to coach pupils with language deficiencies.



Copy of De mooiste vis van de zee by Olga Kooistra

0:35
05:08

Submit Skip Rewatch

The image shows a YouTube video player interface. The video content is a colorful fish with a rainbow pattern on its body. The video player includes a progress bar, a volume icon, and a 'Submit' button. To the right of the video player, there are two image options for a visual listening activity. The first option is a rainbow, and the second option is a red and blue wavy pattern. The video player also has a 'Rewatch' button.

A visual listening activity for pre-schoolers

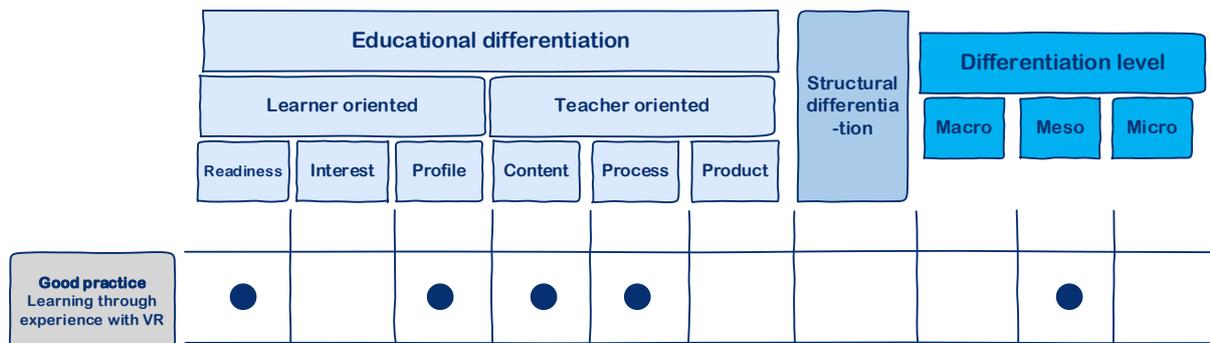


14 Learning through experience with the help of virtual reality

14.1 Country of origin

Slovenia

14.2 Educational analysis



14.3 Description

The use of virtual reality in teaching has numerous benefits for pupils. Not only is learning through experience more effective than learning by reading, hearing or seeing, this type of learning also influences pupils' enthusiasm, active participation in class and encourages their further curiosity and thirst for knowledge.

In terms of differentiation, using virtual reality is a welcoming different way to present learning content that allows teachers to address various types of learners, while experiencing learning content with all senses also influences the improved understanding of the learning content.

Virtual reality is a form of computer simulation which creates perception of presence in an artificial environment. It's most important features are that a user can see, hear and feel the environment, as if actually being physically present. However, the user is not only present in the environment, but active as well. By moving his body and limbs he can reach into the "environment" in which he is "present", he can get acquainted with it and understand it better. Virtual reality creates an authentic insight into content it is demonstrating; while at the same time encourages motivation, which is essential in acquiring knowledge and recognizing that we are learning for life.



At the primary school Osnovna šola Pod goro from Slovenske Konjice, Slovenia, teachers report of positive experiences after using virtual reality in class. Dominik Trstenjak, the teacher of optional computer science class, who is also responsible for helping other teachers at the school in using virtual reality technology in the classroom, says that the school decided to invest in virtual reality technology predominantly because they wanted to increase motivation among pupils to participate in class, and also ensure better visualization of the learning content and provide wider insight in it in comparison to textbooks and other teaching accessories. “Each pupil experiences the same thing differently, their interpretations are not the same. Virtual technology allows them to explore outside limited areas, determined by textbook, pictures, etc.”



Virtual reality is mostly used in higher grades, namely in geography, history, chemistry and biology. They use the Google Expeditions software, virtual glasses and tablets or pupils’ mobile phones which must be powerful enough. Pupils and the teacher have an application installed on their tablets or

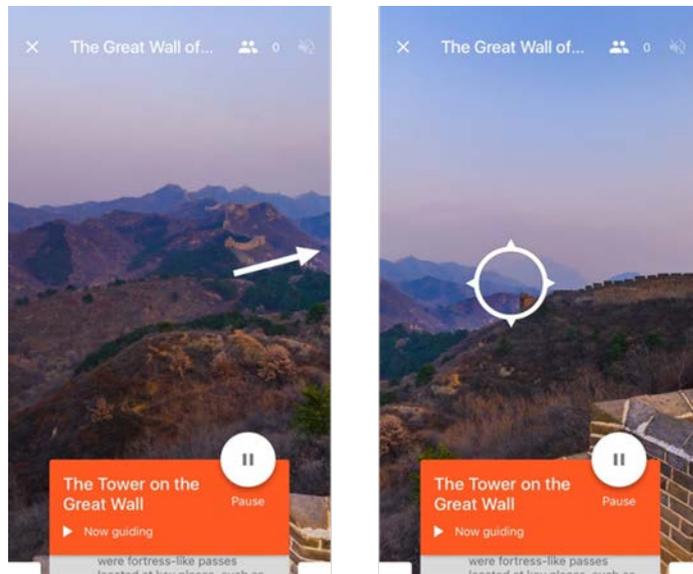
mobile phones that allows control over the entire class, which means that everyone is looking at the same content, while the teacher determines the exact location to which the pupils must pay attention at a certain moment. That is how the teacher controls the entire class over his tablet and guides them through the content. “It is important that the teacher is well prepared before using virtual reality.



Google Expeditions



The Google Expeditions software offers 5 to 10 different virtual tours for each individual theme, which are supported with prepared questions of various difficulties. The questions and assignments are in fact divided into three categories: basic, medium and difficult. Thus, the software helps us in differentiating. We want each pupil to achieve their highest possible level according to their capabilities, and by using virtual reality we can make this work easier and more enjoyable for them,” says Trstenjak.



Adapting the content to different profiles of pupils is the greatest challenge for the teachers. “The teachers often adapt to pupils with learning disabilities, special needs, foreigners, etc., while we frequently forget about the gifted pupils who actually need the same amount of our attention, or even more. And the very use of virtual reality allows us to offer additional or complementary content to all pupils, regardless of differences between them, so they can all adopt the learning content”, stresses Trstenjak.

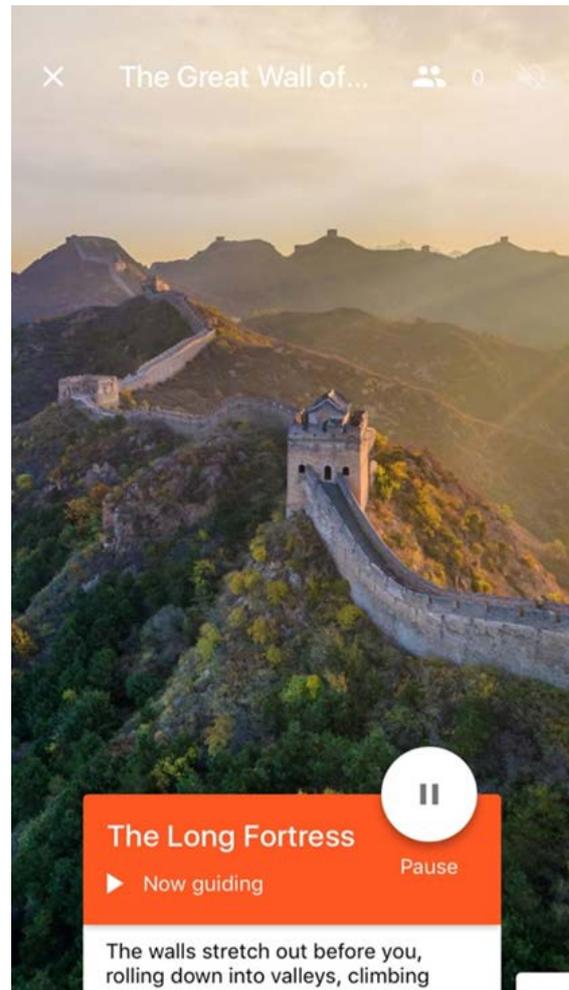




Instructions prepared by the teachers can be differentiated or same for all pupils. That depends on the teacher and the content he is presenting. Virtual reality content is same for all pupils, and it is the assignments that are differentiated. All is already prepared in the software, however, in English. So, the teacher can prepare handouts or worksheets in Slovenian before the class according to software instructions. Pupils cannot see the questions, they only see picture, while the teacher or the administrator has access into the whole content (questions and picture) and thus controls the entire class.

The key to virtual reality's success in class is, according to Trstenjak, especially in interesting and useful contents, which enable pupil's 360-degree insight into the learning content, due to which he is actively involved in the content, making it easier for him to imagine and memorize the learning content.

The school also strives for their teachers to educate themselves individually, follow the trends and participate in various interesting project that contribute to higher quality and interesting teaching.



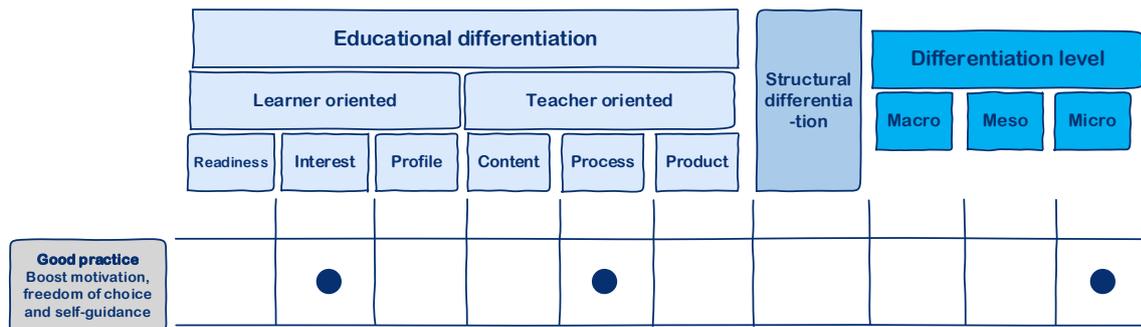


15 Using technology to enrich lessons in order to boost students' learning motivation, freedom of choice and self guidance

15.1 Country of origin

Netherlands

15.2 Educational analysis



15.3 Description

Femke has been teaching 6th grade at primary school Klein Heyendaal in Nijmegen (NL) for 17 years. In her class children feel safe and at liberty to discuss anything with her and each other as long as it is done respectfully.



source: www.kleinheyendaal.nl

In 2014 Femke wrote a proposal to Samsung's innovation fund for education. The main objective was differentiation. She wanted to enrich her lessons with technology in order to be able to adapt more to children's learning needs and to stimulate their learning motivation. Samsung accepted her proposal and donated 32 tablets to the school. In addition Samsung provided some teacher training and digital content partners.



Smart Classrooms
Smart Teachers
Smart Sharing



Samsung
SMART EDUCATION HUB

source: <http://smarteducationhub.nl>

Students in the higher grades of Klein Heyendaal are used to working in a three-week-planning. All students get a scheme containing both obligated and optional tasks. Femke and her students started looking for opportunities to use technology to enrich existing tasks and started collecting successful examples of 'tech-enriched' learning interventions:

- After an instruction, the children have a choice whether they want to proceed to their workbook exercises or if they would rather use their tablet. For instance geography: some children work in their workbook, others make a summary or wordcloud, others create a 'Kahoot'-quiz for their fellow students, others design an online newspaper or clipboard about the subject. The fact that students can collaborate, continue working from home, share and enrich with multimedia are some of the advantages I see in working online.
- Several apps are used to train for instance multiplication and spelling. (Bloon, Squla, tafeltrainer, WiG, 6000Woorden)
- Padlet, an online clipboard tool, is often used. Mainly to share online recourses with or between students. (<http://nl.padlet.com/femkebosmans>)
- Students suggested to using Minecraft in the classroom. After two students presented the opportunities of Minecraft to me, I agreed to use Minecraft worlds in arts (creating creative structures) and for instance geography (try designing a building to fit the climate and surroundings of the Northpole, or South Africa, and how are they different?)
- Students often use Youtube to search for instructional videos. For instance 'how to draw...'-videos
- studiocode.org is used to teach the students some programming basics
- I moderate a Yurls page (<http://groep8kh.yurls.net>) to share resources and other educational materials with my students



You Tube



padlet





The three-week-tasks get personalized, based on test results. Children who know their multiplications don't have to practise these as often as others. This task becomes optional for them. At the beginning of a new three-week-period the students mark which tasks are obligated for them and which ones are optional.

In Femkes opinion, freedom of choice, stimulating the students' feeling of autonomy is very important. The students have to learn how to plan their tasks and choose how to process them. Femke tries to give her students insight in the learning objectives, so they can check for themselves if they succeed. This kind of self guidance is also a very important skill they need when advancing to secondary education.

Sometimes a student can't handle the freedom of choice. Sometimes I will not notice this until they fail at a test. In processing the next chapter/lesson, this student will be asked to use his workbook.

Other iCoaches and teachers often ask Femke how she does it. Where does she find the time to prepare all of these tech-enriched lessons? She states that she gets a lot of energy out of experimenting and her students' enthusiasm. Preparing is very time-consuming. She tries to document good practises and save successful interventions, so she can use them again next year. Femke also stimulates students to create lessons for their classmates.



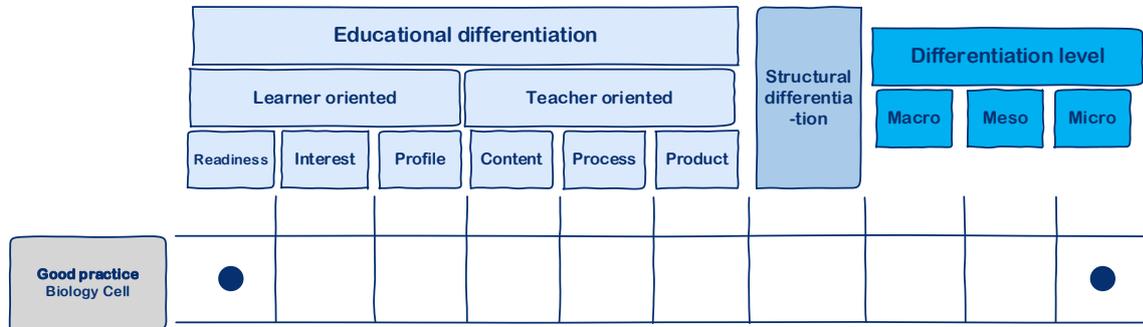


16 Biology Cell

16.1 Country of origin

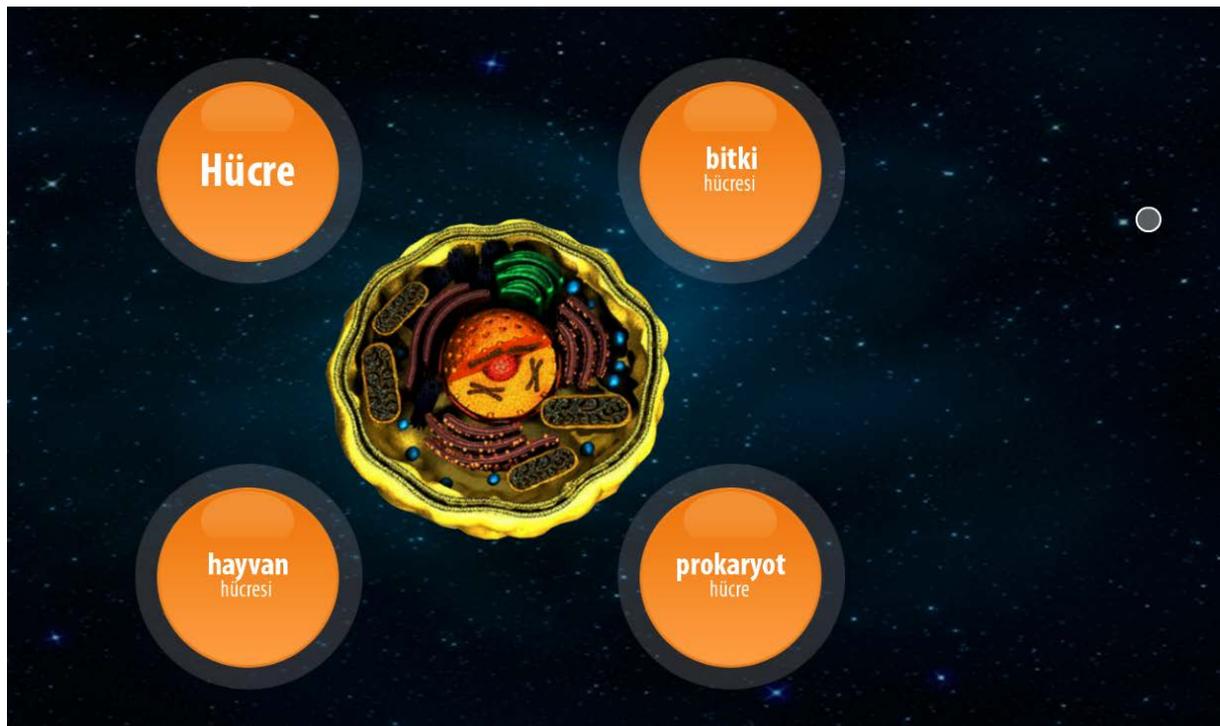
Turkey

16.2 Educational analysis



16.3 Description

The application is a simulation that describes 3 different cell types.



Generally, all cell types are explained, then each cell is shown one by one the tissues they possess and their names are taught.



In addition, students can place organelles into the cell by dragging and dropping to consolidate what the student has learned. The organelles and the tissues appear both sequential and mixed to students.



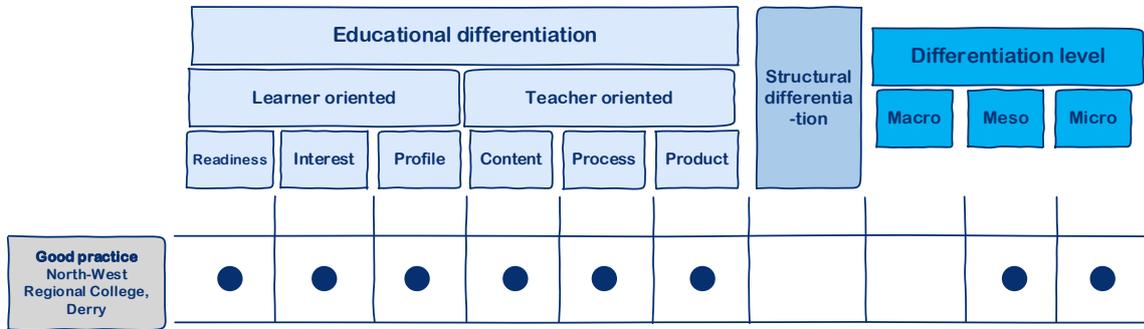


17 North-West Regional College, Derry

17.1 Country of origin

Northern Ireland

17.2 Educational analysis



17.3 Description

Coordinator of Nat Dip Health & Social Care, North West Regional College, Derry, N Ireland

CONTEXT ANALYSIS

The institution is a Further Education college and the teacher is Caroline Mc Keever,. The class is a mixed ability group who have come from a variety of school backgrounds, grammar schools that use formal selection tests and secondary schools that do not use any form of selection.

The class culture/atmosphere is one where all the students are either fairly focussed or very focussed on doing well and progressing on to university or a higher level course at the same college.

There is no grouping strategy as such but there is a range of abilities in the class grouping. Entry to the course is based on a minimum educational achievement, at least 5 GCSEs or a pass at the level 2 version of the course.

There is Wi-Fi throughout the College. Every teaching space has an interactive whiteboard. Desks for most lessons are laid out in a traditional format of rows. However, there is one room used by the teacher, C403, where there is a deliberate effort to have an active learning environment that focuses on the use of iPads. Furniture in that room is less traditional, brighter, modular and moveable. This is to facilitate configurations that enable groups of various sizes to be formed and furniture easily moved to suit various sizes of groups.

The room concerned has an iPad caddy located there permanently. The teacher uses this frequently, to give the students developmental work to do. That is, where they develop some electronic content that forms part of an assessment. Content varies, but includes: mind maps, image, audio and video material.



In every lesson, irrespective of which room she is using, Caroline gets the students to do some work with their smartphones. Very often, this is simply providing feedback or doing quizzes. Tools used include Mentimeter and Kahoot. Caroline also encourages the students to take brief notes using their smartphones and for producing content for assessment. This content may be in various formats, text, images and audio being most common.

The pedagogical vision of the course is simply to assist every student achieve their best, not simply teach to Pass grades in assignments, but to let all students get as high a grade as they can.

The course awarding body requires assignments to be designed to allow clearly specified levels of work developed for achievement of Pass, Merit and Distinction. Students are typically advised by their teachers of what they ought to be seeking to achieve and supported in working for that grade.

DESCRIPTION OF THE PRACTICE

The tablets are used in multiple ways in class for learning:

- Access to learning content from the Moodle learning platform. The content consists of basic material for everybody, along with additional content for those who are capable of going further. Additional content is labelled by the grade it aims to address, i.e. Merit or Distinction. The additional content can be in the format of:
 - Lecturer developed material
 - Links to ready-made online content that is bought in
 - Links to websites
 - Used by students for working on assignments, such as
 - Researching a topic for the assessment
 - Writing up or developing presentations
 - Developing podcasts or videos.

The class group is kept together at all times, except where there is group work.

CONTENT-differentiation

There are a number of different sources of learning materials used. Teachers typically create the basic materials, using Microsoft Office tools. Caroline often uses a set of iPads with her students and they may develop content using iOS app such as Keynote or Explain Everything.

As referenced in question five above differentiation is through assessment, with *students given the choice to address assessment criteria for pass, plus optional additional criteria for Merit and Distinction*. These criteria appear of the course specification. Supplementary learning content is typically provided and identified as such. The additional criteria and content is not simply additional content but more challenging tasks that will provide the opportunity to exhibit a deeper understanding of the subject.

PROCESS-differentiation

Teaching methods used are Direct Instruction plus facilitator of deeper, independent learning through presenting more challenging assessment criteria. Caroline *uses a significant degree of flipped class to get her students to cover learning content*. This allows her to address topics in a more significant way in class. Students need to have *access to some technology outside class*. This can be achieved in most



cases by the student's personal or family devices. In extreme cases, it may require the student to use publically available equipment, for example in the College's Learning Resource Centre.

The tablet/mobile device is involved by:

- Providing access to the material, by tablet in class
- Providing access to the teacher for guidance on developmental work, using tablet in class or smartphone away from class.

Guidance takes many forms, including:

- Course Facebook account, for peer support and direct support from Caroline
- Discussion forums on the course Moodle
- FAQs in limited cases.

Feedback comes in a number of formats, mixed by design, for reasons of variety and suitability for students. It may be:

- Individual feedback on returned assignments
- Audio feedback
- Screencast feedback
- Face-to-face oral.

Audio and screencasts are created on tablet or smartphone and generally accessed by students on personal smartphones.

PRODUCT-differentiation

Various tools, quizzes, online discussions, mind maps. Smartphones and iPads used for quizzes.

All get the same, although Caroline is very flexible in some cases as to what format students provide the evidence, e.g. if someone wishes to provide evidence in an electronic format that they choose then that is fine, so long as the learning is evidenced.

Absolutely, for those who have the ability and drive to achieve as high as they can. The mobile devices are key here as they provide the ease of access to technology and to a range of formats for evidencing learning.

Sometimes there is a link between formative and summative. This is often used to break down bigger chunks of work into more manageable pieces.

There is typically additional content that is made available for students to access.

STUDENT-characteristics

It addresses students who have high motivation and self-created targets. The tablets give them easy access to learn more, outside class, and to evidence learning.

The Head of Department is a key driver in the advances made by Caroline, by setting a direction for the Department that places a significance in effective use of technology. The College has an overall aim to have technology used effectively. Inspectors, who visit the College every year, ask to see



examples of effective use of technology, causing an impetus for innovation, coming from the Principal down through all levels of management.

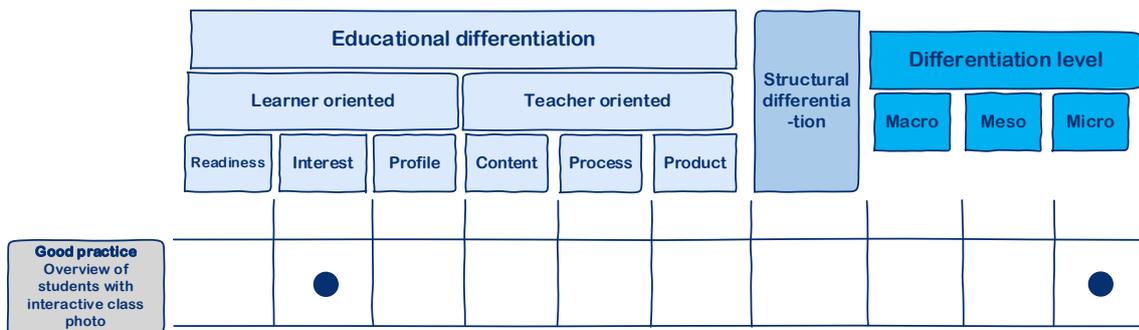


18 Getting a better overview of all students with the interactive class photo

18.1 Country of origin

Belgium

18.2 Educational analysis



18.3 Description

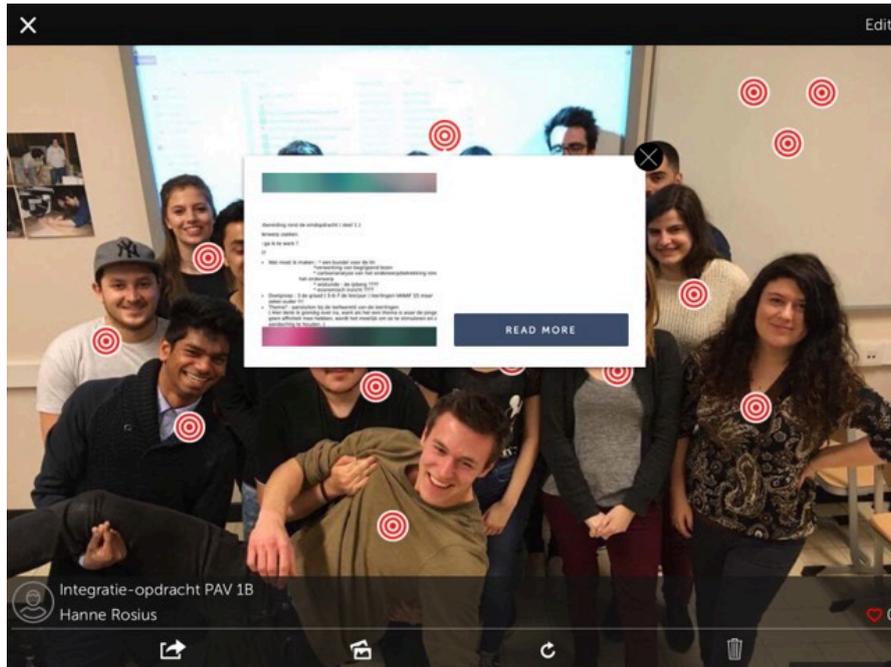
Adapting to differences between students in a proactive way, doesn't only require for the teacher to be well aware of the capacities and performance of his students (learning status), but also of their interests and learning profile. This good practice facilitates gaining insight in the diversity of a class group. (pro – active, structured, learner orientated classroom differentiation)



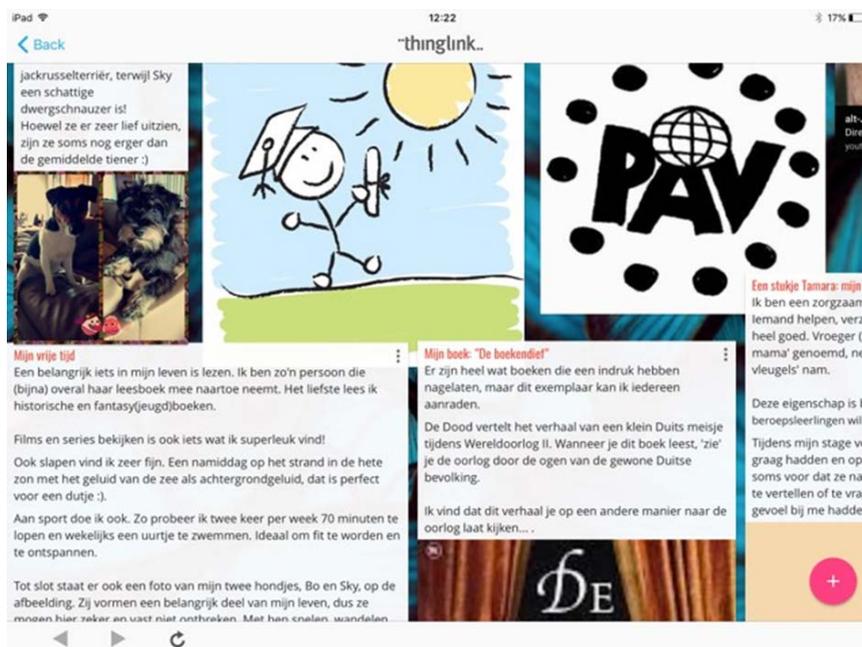
The teacher takes a picture of the class with the tablet. The Thinglink app, an app to annotate pictures and videos, turns the picture into an interactive one. A pointer is put on every student. This pointer gives access to more information about the student, e.g. to his or her personal wall in Padlet. The student is personally involved in the completion of his own information. He or she can systematically add personal information, assignments, logbooks, reflections and so on, to his or her wall.



Below you can find an example of a class photo, with for each student a pointer, which leads to their personal Padlet wall. On this wall, students gather information about their reading profile and interests : do they enjoy reading, or not at all? What arguments do they have not to read? What subjects are they interested in? ... Based on the information on the Padlets, teachers and fellow-students help them to look for a book that matches their reading profile. This enables the teacher to encourage everyone to enjoy reading. (student's interests and learning profile)



Thinglink 'Choose a book for someone else'



Personal wall in Padlet, to which each student adds information

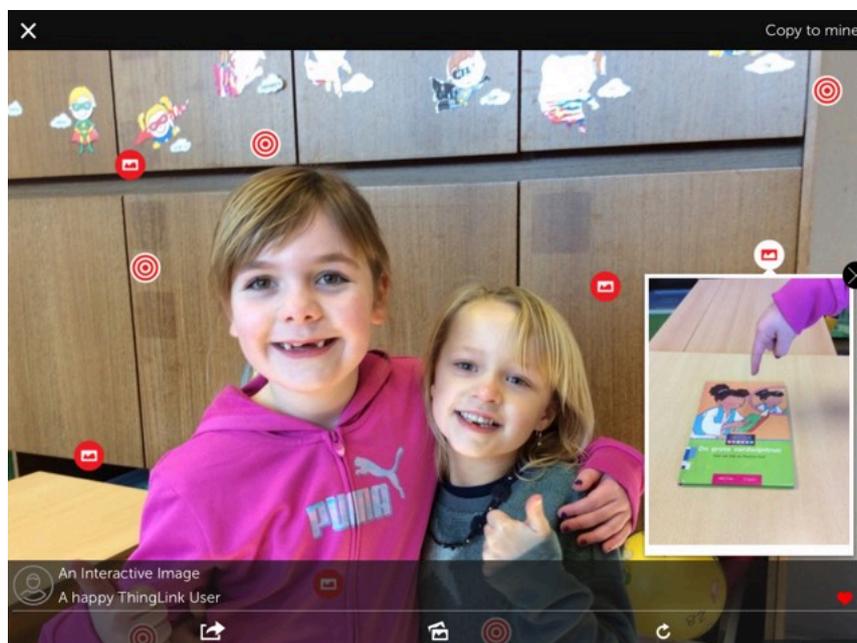
The development of this application was initiated in the Tablio project. It was then passed on to teachers in primary and secondary schools (via www.mooclablio.be). That's how the application was adapted to and tested in different educational levels, in different forms and with different subjects. Teachers often added their own touch to the application. Let's read about some interesting variations.

Maria Helsen tested the application in primary school. She took her pupils to talent classes and had them write their own talents in Thinglink. After the talent classes, they could add the talents they had discovered. In this case, it was the teacher herself who completed the Thinglink, after having consulted the student. All that was needed to realise this application was a tablet. (student's readiness)



Thinglink for talent classes

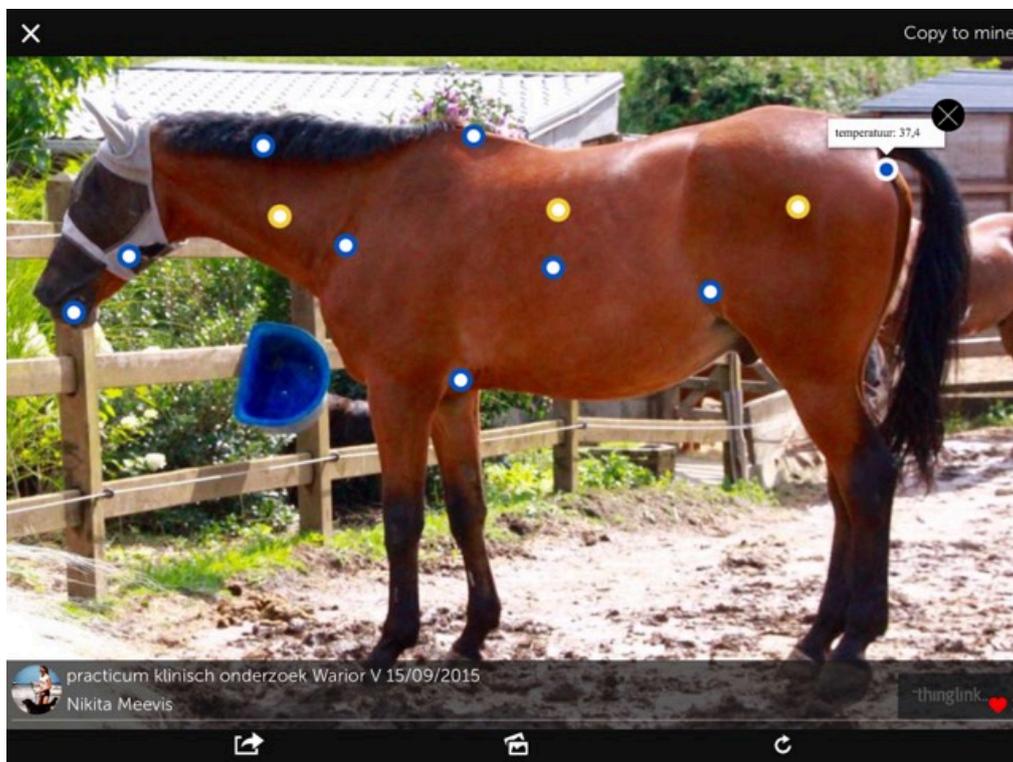
Another teacher who tested the application in primary school was Stefanie Dirix. Her pupils in the second form had to pick someone they didn't often play with. They had to get to know each other and add their favourite spot at school, their favourite book, their hobbies, and so on, to their picture. In Stefanie's class, several tablets were available, so the pupils added the information themselves. Stefanie testifies : 'I thought it would be difficult in the second form, but it was not at all! I had to explain it only once, and they all got it!' Thanks to this application, Stefanie's pupils got to know each other better, but as a teacher she also gained more insight into her pupils' (sometimes hidden) talents, interests and preferences. Stefanie uses this information during her classes. (student's interests and readiness).



Students get to know each other

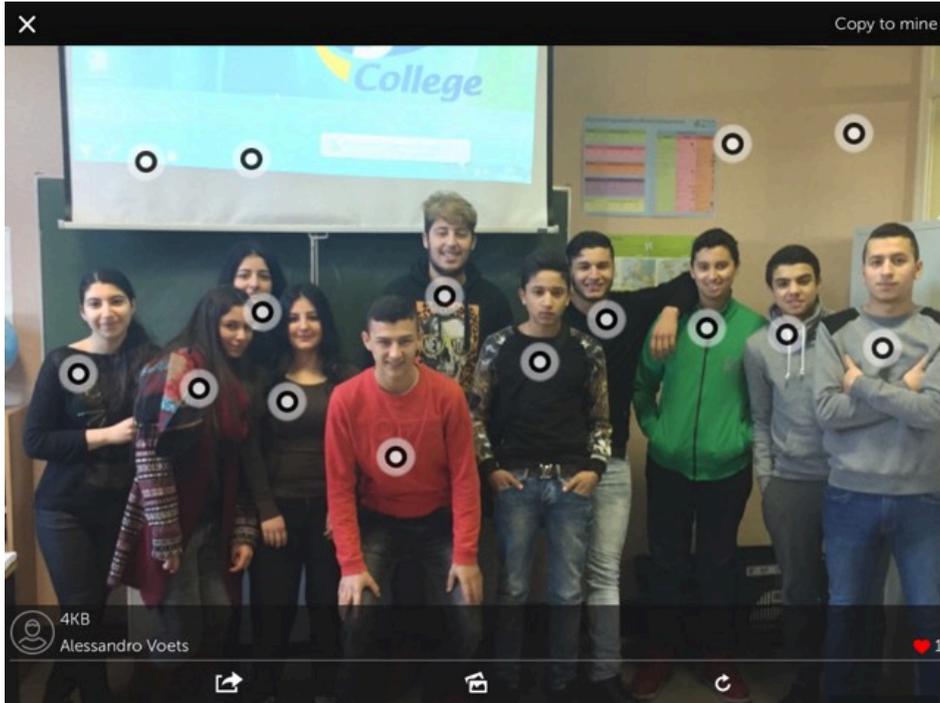


Viki Schroyen designed an application for secondary school. She used the interactive class photo in her practical class 'agriculture' (vocational education, area of horse-riding). Viki tried to spark her students' interest by aligning with their interest in their own horse. She started with a practical assignment that was closely related to daily live in a horse farm. She made her students register the clinical parameters they are taught during her 'agriculture' class (e.g. temperature, pulse, respiration) on a picture of their own horse (student's interests). All pictures were gathered and shared by means of a class photo in Thinglink. Viki's experience : "The students were very proud of their walls and they had a tangible proof of what we practiced.'



Agriculture practice

Alessandro Voets uses the application in the second grade of secondary school, specialised in sales. In the subject PAV (Project General Subjects) students are being taught about a variety of social subjects. Alessandro uses Thinglink to gain insight in his students' experience with these subjects. They regularly post texts or pictures related to them. One of the subjects, for instance, is traffic. To find out about the students' knowledge and the different traffic situations they get into while getting to school, students have to visualise their personal traffic situation on their Padlet wall. Alessandro can then refer to students' examples during class or students can take a closer look at their own situation. (students' interests). The texts his students post give him an idea of their strengths and weaknesses in the area of written communication, which is also an important part of the subject PAV (student's readiness). It is Alessandro's experience that students find it very encouraging when the teacher knows how the issues discussed in class, are integrated in their lives. On the other hand, for students in vocational education it is not at all obvious to do school-work at home (student's learning profile).



Thinglink in PAV

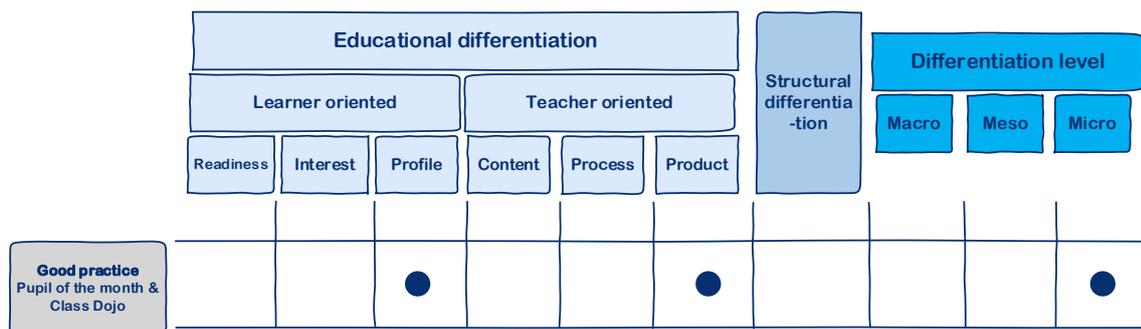


19 Encouraging pupils' social skills, inclusion and taking responsibility for studying with the help of the project “Pupil of the month” and the Class Dojo application

19.1 Country of origin

Slovenia

19.2 Educational analysis



19.3 Description

School is not only a place where children learn to read, write and do mathematics. It is also a place where they learn the essential social skills for successful and happy life. Developed social skills enable pupils to establish and maintain positive relationships with others, which consequently influences their behavior in school, acceptance by peers, teachers and adults, their self-image, as well as their studying, effort in class, joy of going to school and ultimately, their overall educational success.

Petra Matkovič, an English teacher at the primary school Osnovna šola Vide Pregarc from Ljubljana, Slovenia, has as a class teacher thought a lot about how to additionally motivate pupils to study at home as well as to work and participate in class: “Today’s generations of pupils do not perceive lessons and teaching in the same way as they used to. Teachers must invest a lot more work to motivate the pupils and for them to take responsibility for their studying and work.” There are a lot of foreigners in her classes, who come from various linguistic and cultural backgrounds (Bosnia and Herzegovina, Albania, Syria), as well as pupils from poor socio-economic conditions and pupils with special needs, who really need the extra motivation.



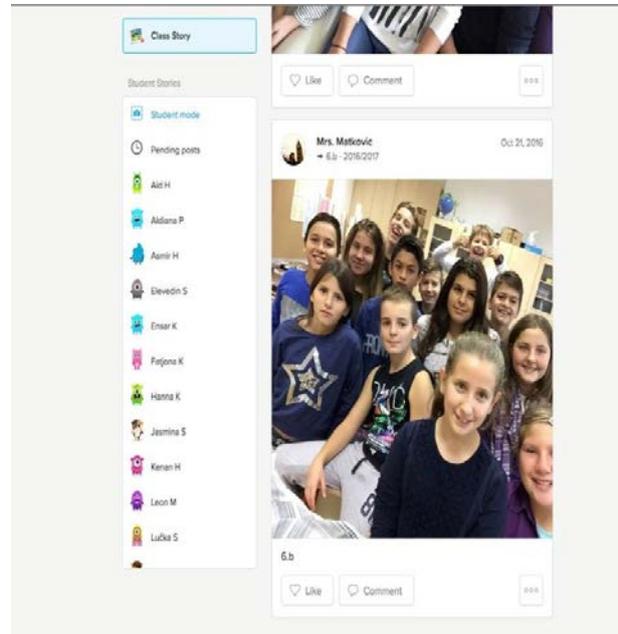
ClassDojo

For this purpose, the teacher started implementing a class project in the class where she is a class teacher, called the Pupil of the month, with support of the Class Dojo application with which she has very positive

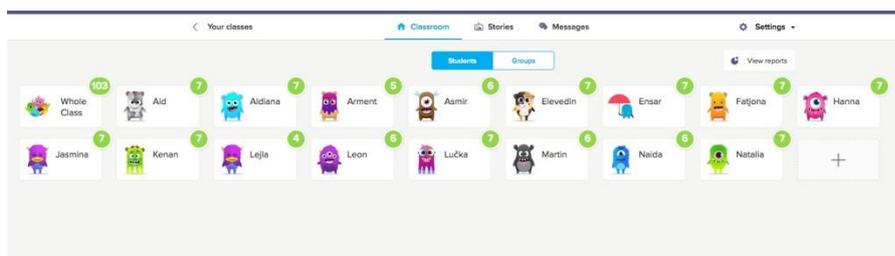


experience. Aim of the project is to encourage positive behavior in pupils, taking responsibilities for independent learning and healthy competition. The project is designed in such a way that pupils set the goals they want to achieve in the beginning of a school year. Then they gain and lose points each day, depending on their behavior and participation in class. The Class Dojo application functions as a tool for creating a competition system in the class.

Goals that the pupils set for themselves each year afresh are related to various social skills, which are important for successful work and positive atmosphere in the classroom. For example, the main goals set by the pupils in Markovič's class were: improving educational success, doing homework and bringing school supplies to class regularly, and mutual collaboration and offering assistance in the classroom. Then they created several competition categories with the teacher and entered them in the application. These were divided into positive and negative. The pupils gained points with positive categories (eg. regularly bringing homework and school supplies, participation in class, assisting classmates, ...), and lose points in negative categories (eg. disturbing lessons, forgetting homework and school supplies ...). The pupils collaborated with each other and gained points by doing so. They could also download various assignments from the application and do them at home, and gain additional points. Additionally, the teacher evaluated the class as a whole, so that the pupils could see at any time how they are doing as a class. Through competition the pupils were (unknowingly) encouraging each other for mutual progress.



"I guided the pupils in the way that they thought by themselves on which areas of learning and social skills they wish to improve. The pupils first chose their avatar or image in the application, which represented them. We evaluated their activity in class and entered points in the application under my supervision. At the end of each month I selected a pupil of the month with the help of the application, who then received a special recognition," says Matkovič.

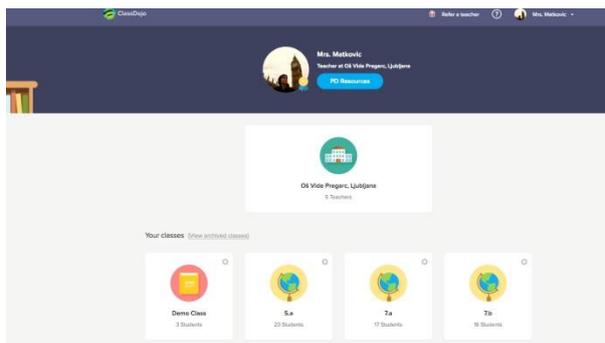
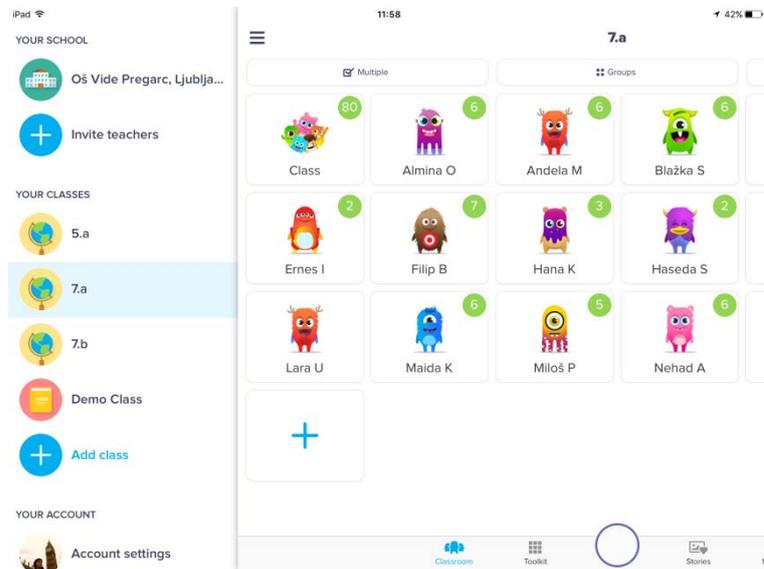


The teacher also informed the parents about the project using an online application, and obtained their consent for implementation of the activity. The teacher installed the free Class Dojo application, which is available for Android and Apple devices applications, on her computer. She also used the application in class meetings as a tool for developing social skills, teaching how to learn and unconscious learning of a foreign language. Short videos in English (how to study, how to handle



defeats, how to learn from mistakes, etc.), which she plays for the pupils from the application in fact serve as a basis for the class discussion.

The Pupil of the month contest begins each month anew, so that all the pupils always have same chances of winning. It is important that both more and less successful pupils have same chances of winning, which is ensured by a diverse selection of evaluation categories. Among less successful pupils are often foreigners, pupils of ethnical minorities, pupils from poor socio-economic conditions and pupils with special needs, which means the Pupil of the month project has a positive influence on the inclusion of all pupils in the class. Matkovič believes that the simple display of information and language of the application, which is partially in English, partially in Slovenian, also plays an important role. Using the application thus encourages the pupils to directly learn a foreign language (English) as well as the native language (Slovenian), mainly helping foreigners to integrate into the class and broader school environment, as well as helping them in communication with others. In addition, the use of a tablet computer motivates pupils to participate in the project and achieve the set goals.



“I am using the Class Dojo application for the third school year, and the results are extremely positive. Most of the pupils in my class have achieved the set goals within the categories we created together. By setting their own goals and recognizing the areas of learning they have to improve, they took responsibility for their studying and positively influenced the dynamic of relationships in the class as well. The Pupil of

the month project, supported by the ICT, has served as an encouragement and motivation for achieving the set goals. The final evaluation in the class has revealed that the pupils need such encouragement and want to continue competing in the coming school year,” emphasizes the teacher, who expanded the competition for a pupil of the month to few other classes in this school year, especially those less successful in learning and discipline. She is also planning a competition between individual classes, which could additionally encourage and motivate the pupils to achieve the set goals and the success of a class as a whole.

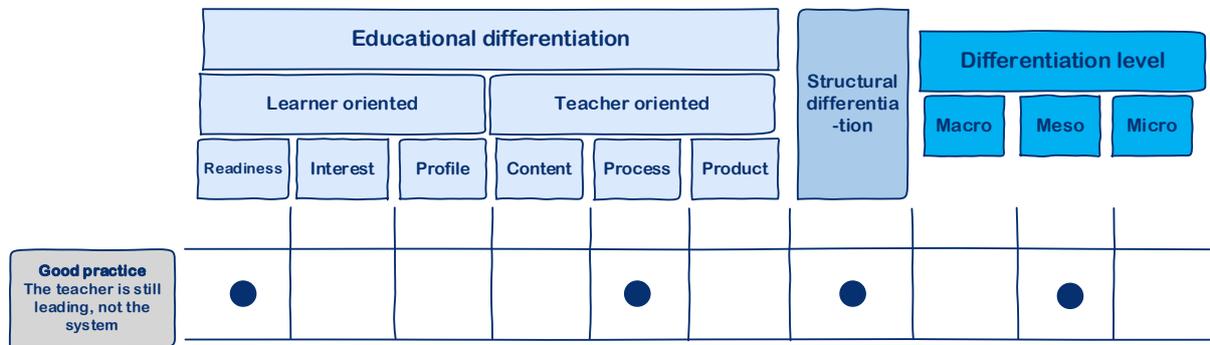


20 The teacher is still leading, not the system

20.1 Country of origin

Netherlands

20.2 Educational analysis



20.3 Description



After working with Snappet for about 4 years, the teachers of Jenaplanschool De Keg in Venray (Netherlands) are increasingly re-evaluating its use. Snappet is good, but less child-oriented than they would wish, it is less capable of catering for the exact individual level of a student, learning activities “outside of the screen” aren’t

supported by the system. The school does provide offline learning activities to complete the activities for the students, but the Snappet timeline can’t take them into account.

De Keg is a Jenaplan school based on the teaching concept conceived and founded by the German pedagogue Peter Petersen. They adhere to 20 Jenaplan principles (see: <https://www.dekeg.nl/page/89953> - in Dutch). #1 principle is “every person/child is unique”.

The school aims to focus on shared discovery, tries to focus not on age groups, but on the development of the child. They aim to be as demand-driven as possible.

The school groups its students into family groups (“stamgroepen”), so groups by design are mixed. For math, a teacher usually has students from a specific group, but when needed students from other groups join the class for specific topics. It is flexible, because it enables us to provide students with support on their level, but also is complex in organization.



This good practice is focused on the use of Snappet (<https://nl.snappet.org/>), an adaptive learning platform, which in this case is used for math and spelling. De Keg uses Snappet at school level and coordinate its use on that level.

The school doesn't use Snappet to replace the book, but as a mean to add options for students to get additional practice at the needed level, after the instruction by the teacher. Students are able to use Snappet to practice different topics and subjects while providing the teacher with a real-time dashboard with data about progress (learning analytics).

A limitation of Snappet is the fact that it only is focused on using the screen as a way to practice. There is no integrated option to combine different types of exercises, like hands-on activities. When students work on a tablet, they learn differently. And while the results are positive for math, they are not for reading. Apparently working from a tablet trains the brain differently than when students work from paper. The results when the tablet is used drop in combination with reading in those cases.

To contrast the use of Snappet: for the subject "Orientation on the World" (WO), the school works project based, not based on a single method provided by a publisher. Here, students have much more options to choose different topics, methods of presenting or producing the results. But without the strong points that Snappet has for practice.

For math and language skills the teacher uses the Snappet dashboard to get an idea of how every student is doing. Based on the analytics, the teacher can choose to provide the student with extra learning materials. Because Snappet has integrated the learning objectives, the teacher can use formative feedback to keep the student on track.

The Snappet system only provides limited feedback (correct / incorrect, recently you can get a score). Because the teacher knows the student, he can usually understand the limited feedback and if needed discuss it with the student.

There is the risk that the dashboard is leading for the teacher. It's something that a teacher, using it, needs to keep in mind. In the end the teacher and not the system should be leading.

In general, learning objectives in primary education are formulated in very broad terms. For WO the school has formulated clear learning objectives and evaluation moments (no tests!) to determine if students reach them. Examples are projects / presentations / events.

Twice a year, the students receive a report. The school doesn't score on a 0 – 10 base for tests but uses reports with the knowledge areas. They do use indications for Unsatisfactory, Just satisfactory, Average, Good, Excellent (O / M / V / RV / G). This is the same for WO, math, reading. The feedback and info provided by Snappet is part of the info used to fill in the report book. The overview that the teacher has over how the student works is even more important.

The school is investigating the possibility of adaptive testing. Testing currently is age related, but this is not always considered that to be fair towards the student. Sometimes they just haven't mastered the material yet.

Also the school is considering how to give better feedback to the students, offer more personalisation in strategies and learning paths and give more insight in learning goals.

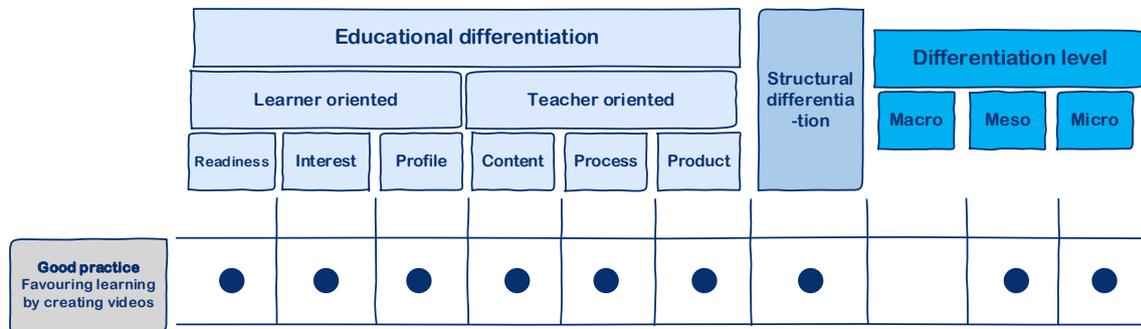


21 Favouring learning by creating videos

21.1 Country of origin

Italy

21.2 Educational analysis



21.3 Description

The interviewee is working in the Istituto Comprensivo “Giovanni XXIII” (Acireale, Catania) located in the suburbs of the city and with a high rate of students coming from disadvantaged background and at risk of early school leaving. This is why the school is always innovating its didactics in order to be more appealing for children and young people.

All classes are heterogeneous, thus including students with disabilities and special needs, and the school always tries to create balanced classes.

Recently, the school has been focusing on the enhancement of students’ responsibility. In doing this, they adopt teaching methodologies used by the “Senza Zaino” (trans. without backpack) network. For instance, on the classrooms’ doors there is a two-side cartoon with one side green and the other red. When a student goes to the toilet, he/she turns the cartoon on the red side so the others know that someone is outside and they cannot go to the toilet and they should wait the other student to come back. In this way, they do not have to ask permission to go to the toilet anymore.

Each classroom has an interactive whiteboard that can be connected to students’ and teachers’ tablets, smartphones and laptops. In two classrooms, there are iPads, while in the others there are other kinds of tablet.

On the basis of the pedagogical vision of the school, namely promoting the inclusion of each student, the teacher uses the tablet in all her lessons for differentiation strategies and to favour inclusion.

The teacher works in early primary education (11-13 years) and she teaches mathematics and science. In mathematics, she usually uses GeoGebra for geometry as she finds it a useful tool to study mathematics while enjoying it because of the interactive exercises.

In science, she uses videos both downloaded from the web and created by students. The first ones are used by the teacher to explain the topic of the lesson. As far as regards the videos realised by the students, usually the class is divided in groups and each group works on the same topic or on different



aspects of the same topic, then there is an exchange in plenary. The teaching technique is mainly based on the “flipped classroom” theory, in which students are the main actors of their learning path. Students are divided according to different indicators on the basis of the topic addressed during the lesson. They might be divided according to students’ readiness level, interests, attitudes, etc. The main idea behind it is to favour peer learning and to let more “advanced” students be tutor of the ones with difficulties in the subject and/or a specific topic.

For instance, when studying the human body, the class is divided into groups to analyse an aspect of the topic and to re-elaborate it through a video.

Along with the video, in particular in the developing phase, they are encouraged to create a conceptual map in order to have a clearer idea both of the topic and of how to structure the video. They can use different Apps to do it. According to the teacher experience, these tools have been proven effective in memorising the topic as well as in enhancing students’ interest. Thus, students are encouraged to use these Apps for all the lessons. The conceptual map can be done in different ways. For instance, the students with more difficulties in writing or using words can use photos or images instead of text in developing their maps.

The apps used to do these videos are usually Quick Video (<https://quik.gopro.com>) and iMovie (<http://apple.com/imovie>).



iMovie logo



Quick video logo

The videos are designed, developed and realised by the students, always under the teacher’s surveillance. Through the videos, they should explain to fellow students the topic addressed: this favours not only active participation by students, but also peer learning.

The videos are uploaded on the virtual class allowing the teacher to provide immediate feedback. The virtual class is also used to correct homework and to favour exchange of learning material among students themselves.



Padlet logo

The videos are then uploaded on the school Padlet (<http://padlet.com>) and made available for all the students of the school and for other teachers who like to use them as learning material.

All the students are connected through tablets as well as smartphones both to the virtual class and Padlet. Students are always under supervision of teachers and support teachers, but they have been answering positively to the possibility of using alternative methodologies during lessons and having more autonomy.

The videos are considered part of the formative assessment and they allow students to be evaluated also through alternative methods than the traditional ones, which usually include only oral and written examinations. Moreover, at the end of each lesson, students do exercises (e.g., didactic “games”, reports, conceptual maps, etc.) that can allow the teacher to understand if the learning objective of that lesson has been reached by all the students and at what degree.

For the evaluation, different methodologies can be used:

- Written tests (e.g., reports, multiple choice questionnaire, etc.)
- Videos
- Drawings
- Collection of picture
- Etc.



This allows to evaluate the readiness level of each student and to understand where they stand in the comprehension of a topic. All the evaluation methods mentioned are usually performed through tablets, notwithstanding the national standards and set methodologies for evaluation that have to be respected by the teacher.

Through the use of tablets and other ICT devices, students have increased their motivation towards learning, their abilities in working in group and communication skills.

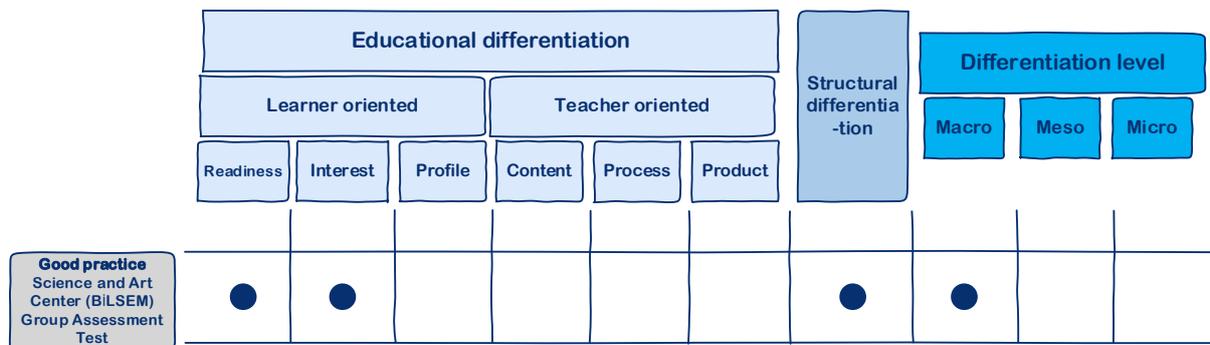


22 Science and Art Center (BİLSEM) Group Assessment Test

22.1 Country of origin

Turkey

22.2 Educational analysis



22.3 Description

BİLSEMs are public, educational institutions that attract the attention of Gifted and Talented students. These centers serve under the Ministry of National Education General Directorate of Special Education Guidance and Counseling Services. GT students are accepted to BİLSEMs by a three-step assessment system. In the first step, primary class teachers make observations and use rating scales to determine their potentially GT students. At this step, all the primary school students (1st, 2nd, 3rd, and 4th- year students) around the country are scanned via the use of an “observation form” to refer students for further testing. In the second step, selected students take group intelligence tests. Finally, based on the results of this test, at the final stage, successful students take the individual intelligence test (Wechsler Intelligence Scale for Children –WISC-R). The students identified as GT and selected for BİLSEMs receive project-based training in line with their interests and needs at times outside of their formal education. The individual intelligence test has been transformed for application on tablets. All the students who are to be assessed are given tablets and the students are expected to do the tasks on the tablets.

Talented and gifted students are tested for their ability in music, arts and sciences. The GT students readiness for special education is tested. Based on their ability and interest, they are given non-formal education to further their abilities. The students are transferred to individualized programs outside the regular school.

There is a group assessment test with the tablet. The tasks require drag and drop type of answers. They get screened via the test to orient to extra-curricular classrooms.



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MEB Bilsem Grup Tarama DEMO

T.C. Milli Eğitim Bakanlığı Eğitim

★★★★★ 1.102

PEGI 3

Hiçbir cihazınız yok

İstek Listesine Ekle

Yükle



MEB Bilsem Grup Tarama Sistemi Demo Uygulaması, Bilim Sanat Merkezleri Grup Tarama Sistemine



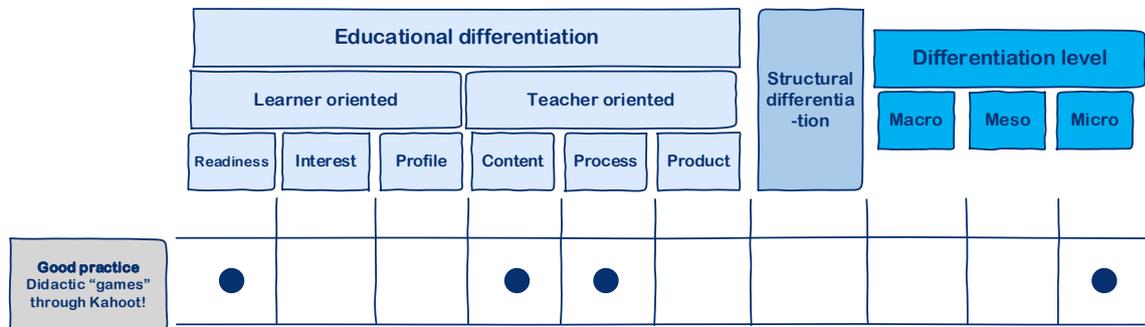


23 Didactic “games” through Kahoot!

23.1 Country of origin

Italy

23.2 Educational analysis



23.3 Description

The interviewee teaches in an early secondary school (11-13 years) in the city centre of Palermo, next to many disadvantaged areas of the city. Thus, most of the students do not have the support of their families in their educational path because of different reasons: cultural background, socio-economic issues, job related commitments, etc.

Unfortunately, the ICT equipment of the school (which has 10 classes) is not adequate for the number of students: only 8 tablets and a wick Wi-Fi connection.

Notwithstanding these difficulties, the interviewed teacher is trying to use tablets for differentiation strategies and to increase students’ motivation towards learning.

The tablet is used to involve students who cannot buy text books and who are not motivated in participating to didactic activities.

The main activities performed through tablets are: researches in class, realisation of videos, didactic “games” in class.

Videos are usually developed by students who are divided in groups, to analyse and study a topic. This technique is based on the “flipped classroom” methodology. Thus, students are the main actors of the lesson and through the videos they are sharing what they have learnt with the others.

The main app used to do the exercises is Kahoot! (<http://kahoot.com>), a platform where it is possible to create or use already existing didactic “games”. It allows the students to learn while playing and being more interactive and active in the learning process.



The app has proven effective not only in increasing motivation and interest in learning, but also in increasing students’ learning success.



The exercises are done in group. Students take part to a challenge among teams. The challenge allows students to exchange opinions and students with less competences on the subject or with difficulties in learning feel less intimidated in asking further clarifications or in making mistakes.

The use of these didactic “games” is helping the teacher in promoting the inclusion of each student. When using the tablet, students with special needs, learning disabilities and difficulties in understanding a topic find it easier to learn, while they are not able to completely follow a traditional lesson (namely, the teacher explaining a topic and the students listening at it).

Thus, the main student-characteristics addressed through the use of Kahoot! are motivation and ability to work in group, collaborate among each other.

Kahoot! can be used also as a tool to evaluate how much the students have achieved their learning goals without using only the traditional methods. This allows students with learning disabilities to feel more included in the class and less different from fellow students.

The interviewee would like to use the tablet on a more regular way in the future starting from the success obtained through the use of this app.

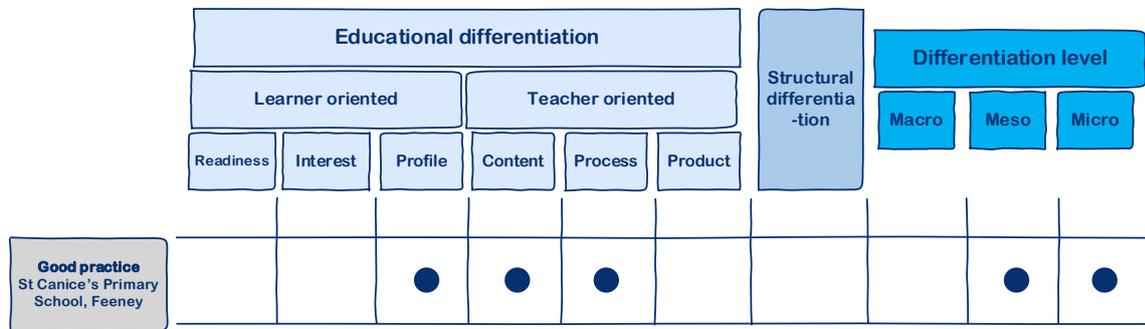


24 St. Canice's Primary School

24.1 Country of origin

Northern Ireland

24.2 Educational analysis



24.3 Description

CONTEXT ANALYSIS

The school is a small, (120 pupils) primary school. The class is a mixed ability group of 30 pupils, aged 9 to 11 years, comprising years 6 and 7. The class culture/atmosphere is one where all the pupils are focussed on fully participating in school and class activities and achieving to the best of their ability.

There is not what one would recognise as a grouping strategy. Children from years 6 and 7 are taught in the same room by Ms Diamond. The teacher allocates pupils seating positions by putting together pupils that she has identified as being comfortable working together. Often, but not always, this means that friends will with together.

The technical resources available across the school are:

- 25 low-cost 3-year old Asus tablets
- 18 iPads, 15 of which are stored centrally and used as a collection when required
- 2 laptops for pupils with learning difficulties.

The mobile devices are used to access electronic learning materials and tools that are web-based, that is what would traditionally be considered as apps for tablets are not used. All schools in Northern Ireland are connected to a regional network for primary and secondary level schools, called C2K. This is a managed service that provides networked access to a wide range of electronic resources and documentation across all Northern Ireland's primary and secondary level schools.

Classroom furniture is laid out in a U shape, so that every pupil is facing the teacher and is able to see each classmate's face.



The pedagogical vision of the school is that each child should be given every opportunity to learn to the best of their individual ability.

DESCRIPTION OF THE PRACTICE

The mobile devices are used for learning in an immersive way. That is, for every developmental activity undertaken throughout the school day, some mobile device is used for the children to undertake tasks that form part of the Northern Ireland curriculum at the appropriate level.

The teacher uses Google Classroom to release in a timely way each activity that the pupils are expected to complete. This involves some instructional material explaining the subject theory, then a task or set of tasks that allow the pupils to create something to put the theory into practice. Build into each task are opportunities to take the level of development somewhat beyond what is needed by the regional curriculum target for that level of pupil.

If a pupil completes the standard task well inside the given time then they are stretched by having the opportunity to undertake a further task. From Google Classroom they will be able to access some instructional material if necessary for the further task. In the cases of pupils who do not reach the expected standard then the teacher will provide additional instruction for them.

Availability of the mobile devices provides a significant level of access for pupils to:

- Instructions from the teacher, in text and audio;
- Additional task specifications, if required;
- Additional support materials, if required;
- Access to the World Wide Web to allow pupils to acquire information and digital assets (images, videos) to be used for task development;
- Software tools to build electronic materials for evidence, including tools for creating still images, audio and moving images;
- Tools for collaborating with classmates and pupils from twinned schools, including demonstrating content developed;
- Audio feedback from the teacher.

The teacher is able to do live checking from her device on how each individual is progressing, to some extent.

CONTENT-differentiation

The learning materials are a mix of procured, bought or obtained from central public-funded support agencies, and developed by Ms Diamond. Two of the core tools are Accelerated Reading, bought-in for reading, and MyMaths, bought-in. The latter has a very wide range of mathematical content, with:

- instructional material, including interactive demonstrations;
- associated exercises;
- the ability to give “homework”, something that is used in class time to allow fast learning pupils to attempt mathematical examples beyond that expected from their cohort.

MyMaths-content covers a very wide spectrum of the mathematics curriculum, up to age 18.



The mobile devices are available for individual pupils to work through defined tasks at specific time slots in the class timetable.

PROCESS-differentiation

Teaching is very much pupil-centred with a variety of methods employed. New topics are introduced using Direct Instruction and demonstration. Learning materials are made available to pupils through Google Classroom, with presentations and exemplars displayed on an interactive board but also shown on a mobile device shared between 2 pupils.

Depending on the topic that is being covered, inquiry-based learning plays a major role in a significant proportion of the curriculum. Inquiry and related task development is almost entirely based on use of the mobile devices available.

Differentiation is achieved in a number of different ways, depending on the subject matter. For much of the curriculum, which uses inquiry-based approaches, tasks can be extended in complexity, either by suggestion of the teacher or the pupil. For example, Adopt a Pet, a task that incorporates many elements of the curriculum, including maths, will have a large element of inquiry along with some direct instruction. The latter will contextualise the task and give some initial mathematical background.

The task itself will involve working out all the elements involved, including the costs of procuring and keeping the chosen pet. The pupil will develop a piece of work that will outline all the considerations for keeping the pet. For differentiation, if a pupil is a gifted child, the teacher may pick an exotic pet, such as a meerkat. This will require the pupil to consider a range of elements that are different to a more traditional pet, such as a dog or cat. For example, import costs, quarantine costs, specialist housing. The pupils will have to work out initially that all these extra factors are needed and calculate costs.

There are extensive support materials on the network for the pupil to access, some available from the regional curriculum support service, other created by Ms Diamond. In the case of some bought-in services, such as the web-based My Maths, there is a significant provision of ready-made instructional and practice materials.

Ms Diamond intervenes where individual pupils are experiencing difficulty with specific learning content and undertakes one-to-one or small group additional support. This may involve allocating further practice sessions that use the mobile devices.

Ms Diamond makes audio comments on pupils' work. This commentary is attached to each piece of work and is available to each pupil through their individual account.

Individuals are encouraged to review each piece of work completed and submitted and consider What Went Well (WWW), to pick up on the positive aspects of the experience and work produced. They are also routinely required to consider Even Better If (EBI), to specifically address what they could have done in a task to improve on it. The individual WWWs and EBIs are shared with the rest of the class, so that all pupils can learn from their peers.



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The key shareholders are; teachers, Principal, parents, classroom assistants, central educational support organisation (setting the UICT framework in conjunction with schools).