

BYOD-Learning Project

The development of Learning Videos

OBJECTIVES OF THE 15 – 30 – 45 min LEARNING VIDEOS

Through piloting development in application in Mathematics of Grade 7

The influence of digital videos in students' everyday life is undeniable. Nowadays students are using educational videos as a tool for learning almost everything. That's why the idea of the BYOD-Learning project to design learning video lessons, covering the mathematical content from the curriculum of 7 grade students, is to provide an alternative flip-classroom learning environment that can serve several general purposes:

1. to develop:
 - flexible digital learning and knowledge access in school environments
 - the approach of learning at any-time, at any-place through any-device
 - learning solutions in times of pandemic or other crisis
 - new communication skills for teachers
2. to promote:
 - digital transformation in schools
 - the transition to STEAME Education
 - the transition to EDUCATION 4.0

The objectives of using learning videos in maths or other subjects are:

- to develop innovative approach in teaching Math;
- to reduce disparities in learning outcomes affecting all learners;
- to incorporate ICT-based methodologies for learning Math;
- to provide more attractive education and training implementing open educational resources and digital tools;
- to develop students' key competencies particularly mathematical and digital competences;
- to develop personal, social and learning to learn competences in students;
- to enhance professional development of teachers involved in the process of education;
- to enable teachers and schools to transfer part or the entire educational process in a digitally supported environment allowing them to implement distance/hybrid learning models;
- to provide the competence framework for teachers that will empower teachers to rapidly adapt to a transition to a distance/hybrid learning environment;
- to improve learning, taking into account the different learning styles of students;
- to offer every student a personalized approach to learning where they control their own pacing and where they can see themselves as successful students, and allows students to choose their own learning pathways;
- to provide students different models of learning than the textbooks they use in school;
- to involve the era of the fast moving technology in the classroom;

- to help teachers capture the attention of their students to make them acquire skills and competencies;
- to propose pedagogical approach in which direct group learning transforms into individual learning space;
- to provide a dynamic, interactive learning environment.

The innovative aspect of the project is the fact that each mathematical learning content will be designed in three different time duration frames for students with two types of scenarios:

TYPE A Level of ability: For three different types of achievers, as follows:

- 15- minutes videos for the overachievers in Math.
- 30 minutes for the average students in Math.
- 45 minutes for the underachievers in Math.

TYPE B – Level of elaboration: For three different types of content. For three different styles of facilitating the learning as follows:

- 15- minutes videos for initiating the learning session content and material in Math.
- 30 minutes for additional elaboration of theory and practice in Math.
- 45 minutes for further elaboration giving more examples/exercises.

The objectives of the 15-minute learning videos are:

- To acquaint students with new educational content in mathematics in a synthesized way.
- Recall students' knowledge of mathematics on certain content.
- To upgrade students' knowledge of mathematics on specific mathematical content.
- To eliminate knowledge gaps.
- Will contribute to the process of inclusion of the higher ability students in the process of learning challenge.

The objectives of the 30-minute learning videos are:

- To acquaint students with new learning mathematical content not only in theoretical aspect, but supported by illustrative examples of its application.
- To show how to apply the learned mathematical content by solving different problems in order to consolidate mathematical knowledge.
- Recall students' knowledge of mathematics on specific mathematical content.
- To eliminating knowledge gaps.

The objectives of the 45-minute learning videos are:

- To acquaint students with new learning mathematical content presented theoretically and supported by many examples.

- To show how to apply the learned mathematical content by solving a sufficient number of mathematical problems, graded by complexity in order to master the learning content
- and developing skills in students for its application.
- To master specific ways of solving problems.
- Recall students' knowledge of mathematics on specific mathematical content.
- To eliminating knowledge gaps.
- To develop skills for self-study, for independence and responsibility for the tasks set.
- These videos should be more instructional, with more detailed explanations.
- These videos should motivate weak students to be involved in the process of education in Math.

The benefits of using learning videos as an educational tool:

- Videos create a more engaging sensory experience than using print materials alone.
- Videos are accessible on a multitude of devices including laptops, tablets and smartphones. This allows for viewing at the student's convenience and from wherever they are.
- Students who need more processing time can pause and rewind the video.
- Students who benefit from repetition can watch it as many times as they want.
- Students can take notes as they wish at their own pace.
- Students who are deaf or hard of hearing can read the closed captioning.
- Students who benefit from being given notes can review a transcript.
- Videos enable teachers to create a flipped classroom or "blended" learning environment.
- Video lessons facilitate remote learning opportunities so that teachers can reach their students from all over the world.
- Videos seek to change the roles of teachers from lecturers to facilitators. It's important to note that videos are meant to enhance course materials and lectures – not replace them.
- Good videos can be fun, motivating and educational – and are often a welcome break from more traditional classroom activities.
- Making videos can help you offer students more ways to access the information.