

7th international ELT conference  
“CLIL and ELT: Changing English, Changing Content”,  
April 25–26, 2019  
Narva College of the University of Tartu, Estonia

***Furthering CLIL in science: sustainable  
professional development English course  
for researchers***

Presenter Vera Nesterova

Karelian Research Centre of Russian Academy of  
Sciences, Petrozavodsk, Republic of Karelia

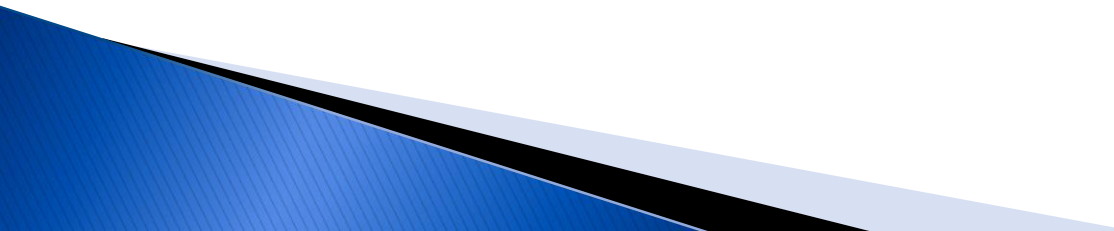
# ***Petrozavodsk Republic of Karelia***



***Karelian Research Centre,  
Russian Academy of Sciences***



## ***Presentation outline***

- ▶ 1. Introduction: what does “furthering” CLIL mean? Our brief history;
  - ▶ 2. CLIL for adult learners (scientific researchers in geology), what lies behind.
  - ▶ 3. Teaching methods and technologies applied in the course (CLIL, blended learning/ flipped model, MOOC);
  - ▶ 4. Final remarks: first outcomes and preliminary conclusions;
  - ▶ 5. Future: shall we go further, what is our next step?
- 

# ***Introduction***

***The 4<sup>th</sup> International Conference in 2012, Narva College of the  
University of Tartu***

***“Teaching English and Teaching in English”***

**“Practical applications of CLIL: materials selection  
and lesson planning at post-graduate level”.**

**The project described: *“Philosophy and history of  
scientific publications” (for PhD students). It is a soft-  
CLIL course, the English module of the mandatory  
discipline “History of Science” in Russian)***

## *Presentation in 2019:*

- ▶ **“Sustainable professional development English course for researchers”** at Karelian Research Centre of the Russian Academy of Sciences (KarRC, RAS) in Petrozavodsk.
- ▶ The project has been designed for researchers of the Institute of Geology, former students of our post-graduate school. They passed the mandatory English exam in their research areas (B1 + – B2).



# Content and Language Integrated Learning

## *Choosing CLIL*

- ▶ **The purpose:** to foster professional development in research through English as a global language of science and technology (EST) and English as a Lingua Franca (ELF) for social and professional/ scientific communication.
- ▶ **The reason:** scientists with language backgrounds other than English have certain **disadvantages** with academic/scientific communication (oral and written).
- ▶ **The life-long goal:** **adult learners** need not only **develop** academic English proficiency taking their special PhD course and exams, but also **sustain** their professional content and language integrated **knowledge and skills** to apply them with success at international scientific conferences, write and have their papers published in journals with High Citation Indices (HCI), participate in joint projects, discussions, negotiations, etc.



## *Theoretical aspects: definitions of CLIL*

- ▶ **D. Marsch** (one of the renowned experts on CLIL) describes it as follows: “Content and Language Integrated Learning refers to **any dual-focused educational context** in which an **additional language** is used as a **medium** in the teaching and learning of non-language content”.
- ▶ **Do Coyle** writes in his blog: “CLIL is an **umbrella term**, it encompasses **any** activity in which a foreign language is used **as a tool** in the learning of a non-language subject in which both language and subject have a joint role (2002).
- ▶ “CLIL can involve **many methodologies** from subject and language teaching” (Kay Bentley “The TKT Course. CLIL module”, CUP, 2010).

**Conclusion:** we can choose **any** suitable approach/es and technologies to fuse and synergize them under “the CLIL umbrella”.

## *Practicality of CLIL*



- ▶ **CLIL has proved to be:**
  - ✓ practice-oriented;
  - ✓ learner-centered, close to the reality of the learners' professions and research work;
  - ✓ motivating learners and instructors;
  - ✓ aimed at “learning English by doing”;
  - ✓ a life-long concept embracing all sectors of education;
  - ✓ flexible and dynamic;
  - ✓ integrating a foreign language and non-language subjects in mutually beneficial way.

# Designing the project. Thinking globally: the 21<sup>st</sup> century skills and innovative pedagogy



## *Thinking globally*

- ▶ **Globalization** of the workplace: one of the **driving forces** behind the growing role of English as a global language of professional/ scientific, and social communication; crucial for **the financial success** of scientific institutions, laboratories, individual research careers (e.g. support from foundations, funds; grants; mobility of scientists, etc).
- ▶ **Global communication and cooperation** are increasingly conducted in **digital environments** thus making **digital literacy** an essential skill.

**Conclusion:** Integration of digital technologies in the 21<sup>st</sup> century education and CPD programmes becomes critical in this respect.

## *The project leading principles*

21<sup>st</sup> century skills in education and CPD were chosen as leading principles in the project development (the Partnership for 21<sup>st</sup> Century Skills (2009). USA). [www.21centuryskills.org](http://www.21centuryskills.org).

Briefly, they consist of the following “4 Cs”:

- ▶ 1). **C**ritical thinking;
- ▶ 2). **C**ommunication;
- ▶ 3). **C**reativity;
- ▶ 4). **C**ollaboration + *Digital literacy!*

# *Principles of CLIL*

The umbrella term **CLIL** is formulated by its own “**4 Cs**”:

- 1) **C**ontent;
- 2) **C**ommunication;
- 3) **C**ognition;
- 4) **C**ulture.

*The 4 Cs principles compared*  
*Do they contradict to each other?*  
*Can they be used together?*

- ▶ 1). **C**ritical thinking;
  - ▶ 2). **C**ommunication;
  - ▶ 3). **C**reativity;
  - ▶ 4). **C**ollaboration
  - ▶ + Digital literacy!
- ▶ 1) **C**ontent;
  - ▶ 2) **C**ommunication;
  - ▶ 3) **C**ognition;
  - ▶ 4) **C**ulture.

21<sup>st</sup> century skills

CLIL

**information**  
**literacy**  
**Use**  
**learning**  
**skills**  
**managing**  
**awareness**  
**communication**  
**effective**  
**tools**  
**economic**  
**high quality**  
**responsibility**  
**productive**  
**high quality**  
**scientific**  
**relevance**  
**expand**  
**manage**  
**core**  
**social**  
**Global**  
**assessments**  
**risk taking**  
**Ability**  
**interpersonal**  
**Visual**  
**present**  
**creativity**  
**Interpret**  
**four classroom walls**  
**curiosity**  
**subjects**  
**usefulness**  
**real world**  
**manage**  
**technology**  
**sound reasoning**  
**collaboration**  
**standardized**  
**teaching**  
**digital**  
**produce**  
**Basic**  
**the**  
**beyond**  
**Age**  
**Multicultural**  
**tools**  
**Teaming**  
**Civic**  
**Higher order complexity**  
**Adaptability**  
**planning**  
**Self direction**  
**Inventive**  
**accurate**  
**Learning**  
**business tests**  
**Communication**  
**Classroom**  
**thinking**  
**Collect**  
**global**  
**Personal**  
**Organize**  
**Prioritizing**  
**Interactive**  
**Generate**  
**responsibility**  
**Evaluate**  
**existing resources**  
**Productivity**  
**high quality**  
**relevant**  
**must**  
**scientific**  
**Financial**  
**products**  
**Literacy**  
**technology**  
**Higher order complexity**  
**sound reasoning**  
**Civic**  
**Teaming**  
**Adaptability**  
**planning**  
**Self direction**  
**Inventive**  
**accurate**  
**Learning**  
**business tests**  
**Communication**  
**Classroom**  
**thinking**  
**Collect**  
**global**  
**Personal**  
**Organize**  
**Prioritizing**  
**Interactive**  
**Generate**  
**responsibility**  
**Evaluate**  
**existing resources**  
**Productivity**  
**high quality**  
**relevant**  
**must**  
**scientific**



*Thinking “digitally”: digital technologies  
applied in the project*

Our own experience proves that **Massive open online courses (MOOCs)** are the most recent ICT initiations in the field of higher and lifelong education on the lines of creating **global education platform** to make knowledge and educational resources accessible to all.

The experienced MOOC developers, Colin Milligan and Allison Littlejohn, points out that “MOOCs present a potentially useful mechanism for supporting and enabling professional learning, allowing opportunities to link formal and informal learning”. Milligan, C. & Littlejohn, A. (2014).

Supporting Professional Learning in a Massive Open Online Course. *The International Review of Research in Open and Distributed Learning*, 15(5), 197–213. Athabasca University Press. Retrieved April 14, 2019 from <https://www.learntechlib.org/p/156219/>.

# *Pedagogical philosophy underlying MOOCs*

It is a **hybrid of different pedagogical approaches**, i.e. it is not only a tool, but a **wider methodology**.

MOOCs provide a **global platform** for:

- ▶ improving **educational outcomes** for MOOC learners;
- ▶ bringing **innovations** in teaching and research;
- ▶ setting up **international collaboration and networking**.

**Learning principles** for a MOOC focus on:

- ▶ the activities of the learner (**learner-centered approach**);
- ▶ the learner's activities will be the main driver for the learning process (**creativity, motivation**);
- ▶ the learner will **be responsible for sharing and discussing information**, ideas and knowledge with colleague learners (**communication, collaboration**).

Could the MOOC principles be applied jointly with those of CLIL and 21<sup>st</sup> century skills?

***What pedagogic approach is most suitable for practical implementation of the project?***

Massive online open courses (MOOCs) have been widely used in various ways, often in the form of a **blended learning approach overlapping with the flipped learning model.**

**“Flipped learning is a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts, and engage creatively in the subject matter” (Flipped Learning Network (FLN,2014).**

## *The Four Pillars (principles?) of F-L-I-P are:*

- ▶ 1). **Flexible environments** (a variety of learning modes, flexible learning spaces – learners can choose when and where to learn);
- ▶ 2) **Learning culture** (shifting instruction to learner-centered approach; in-class time is dedicated to in-depth discussions);
- ▶ 3). **Intentional content** (educators determine what material to teach, and what do students need to explore on their own);
- ▶ 4). **Professional educator** (the role of an educator becomes even more important: they observe learners, provide them with feedback/scaffolding, remain essential ingredient that enables Flipped Learning to occur). (Flipped Learning Network (FLN). (2014). [www.flippedlearning.org/definition](http://www.flippedlearning.org/definition)).
- ▶ **NB!** *The role of the professional educator* is part of the abbreviated name *for the first time* (although all the previous three approaches also imply the instructor's role).

## *Making final analysis and creating the project syllabus*

- ▶ The final decision looks as follows:
- ▶ to create **the MOOC–CLIL course** based on the learners’ professional and scientific interests – *“The Earth in my pocket: Introduction to Geology”*, *the MOOC* developed by the Open University, UK, on FutureLearn platform, in the **blended/flipped learning environment**.
- ▶ We called this approach “conditionally” as *“Flipped MOOC–CLIL Learning”*.

## *Free Online Courses*

***FutureLearn*** is a private company owned by The Open University, with the benefit of over 40 years of their experience in distance learning and online education. Their partners include over 20 of the **best UK and international universities**, as well as **institutions** with a huge archive of cultural and educational material, including the **British Council**, the **British Library**, and the **British Museum**.

<https://www.futurelearn.com/>

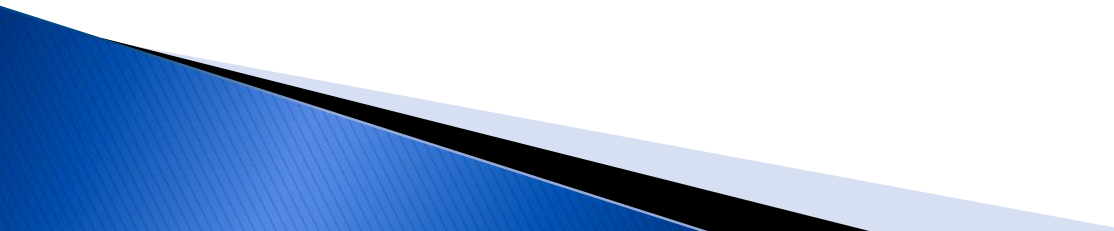


## *More about the project*

- ▶ **The title:** *“Sustainable professional development English course for researchers”*.
- ▶ **Designed:** for researchers of the Institute of Geology, KarRC RAS.
- ▶ **Study load:** 70 hours (16 hours of on–line learning, 20 hours of traditional classes, 6 hours of consultations, 24 hours of self–study and preparation of final tasks, 4 hours: final “mini–conference” with presentations of own results).



## *Topics to study and discuss (MOOC):*

- ▶ **Week 1.** Different types of rock, the rock cycle and plate tectonics.
  - ▶ **Week 2.** Ore resources.
  - ▶ **Week 3.** Oil deposits: origins, exploration and uses.
  - ▶ **Week 4.** Geological extraction and processing. The environmental impacts of using the Earth resources.
- 

## *The MOOC goals*

*By the end of the course, you'll be able to*

- ▶ **Identify** different igneous, sedimentary and metamorphic rocks.
- ▶ **Assess and understand** the origin, occurrence and availability of some natural physical resources associated with metals, oil and building stones.
- ▶ **Apply and use** numerical and graphical methods to interpret quantities and concentrations of different natural resources.
- ▶ **Describe and appreciate** societal and environmental issues associated with the sustainability of the Earth's physical resources.

## *+ Our goals added*

- ▶ **Apply** the EST knowledge gained in the Flipped MOOC–CLIL project *in your research work*, i.e. in oral and written scientific discourse in English;
- ▶ **Sustain** your EST and ELF proficiency connected with your research area (**revising and widening the content-obligatory and content-compatible language**);
- ▶ **Compile a glossary** of specialist language in your research area;
- ▶ **Make a presentation** on the theme of your research work based on the materials of the MOOC and your own;
- ▶ **Use the sustained hard and soft skills** in your practical activities for **successful scientific and social communication**.

## *Practical studies*

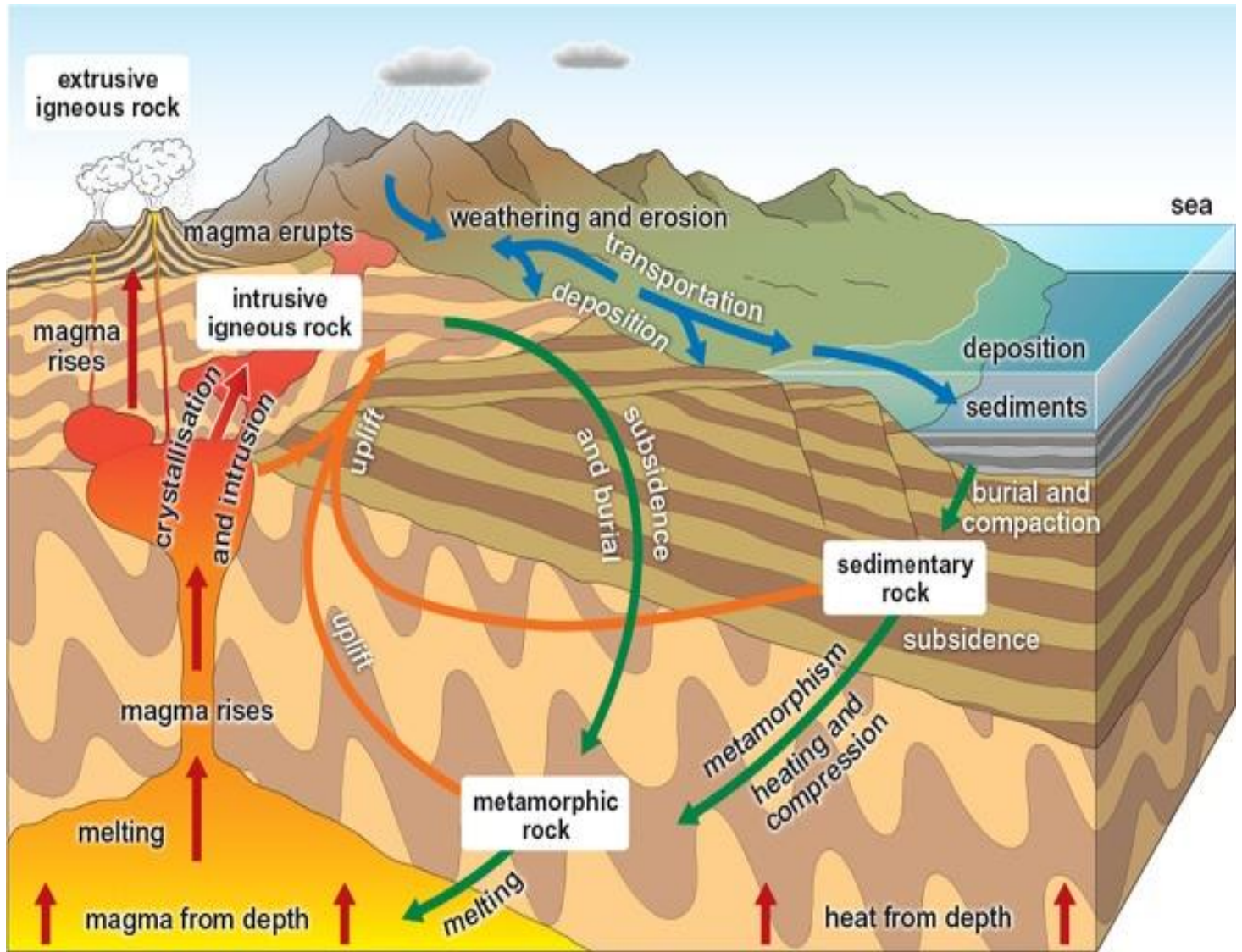
The project started in parallel with the 4-week course online period. During each week the learners and the educator participated (self-study, individually) in the course, and at the end of each week we had a traditional class for discussions, exchanging views and opinions.

# Illustrative materials, their educational role

- ▶ The MOOC includes **videos, tasks, tests and additional articles**. Videos are accompanied by **scripts** which is good for learners: they can study the material in depth.
- ▶ **Listening skills** are especially important as there are lots of technical words, and the learners can check how they are pronounced.
- ▶ **Next 2 slides:** examples of one video and illustration.



vz082d2eab6ddc4e3b9c54a930307bcaa0.mp4

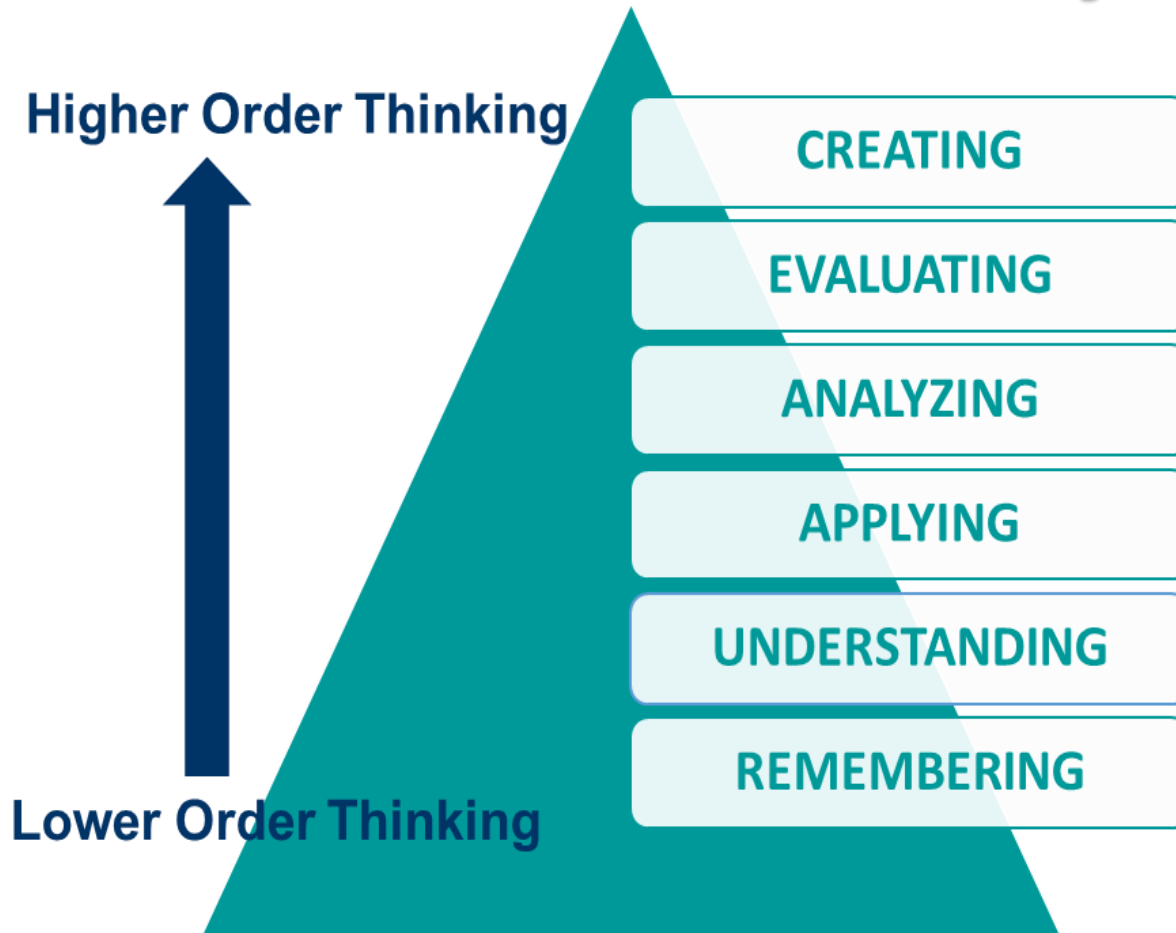


# Higher Order Thinking Tasks based on Bloom's taxonomy

- ▶ The course contains a lot of pictures, graphs and photos which we applied for creating HOTs for the learners, such as: **Describe** the picture, graph, table, **give a definition of ...** (e.g, **igneous rock**), **explain** its origin, etc. What rock(s) do you study? What methods do you use? What special equipment do you need?
- ▶ Our course participants **created different mind-maps** (e.g. collocations). For creative talks and motivated discussions we asked them to **bring rocks collected during field trips in Karelia and other parts of Russia studied under laboratory conditions**, and describe their properties, tell about their value, etc.



# Bloom's Taxonomy



## First outcomes and plans for the future

- ▶ The course is still under way, but we can draw some preliminary conclusions.
- ▶ Firstly, it was completely new for our adult learners to participate in the MOOC in English.
- ▶ Secondly, they express interest and motivation, actively participate in discussions, etc.
- ▶ At the end of the project we are planning to hold a geological mini-conference.
- ▶ In future, we hope to move further, and start a new project devoted to EMI (English as a Medium of Instruction) methodology.

*Thank you*

*for your attention.*

