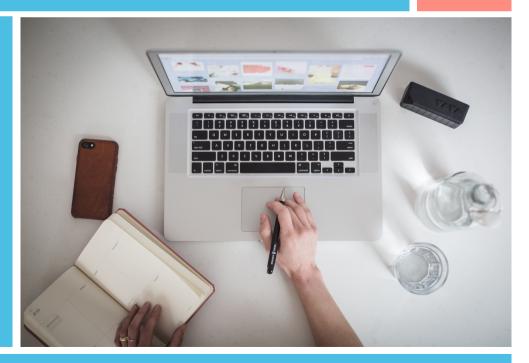# Tutorial 2

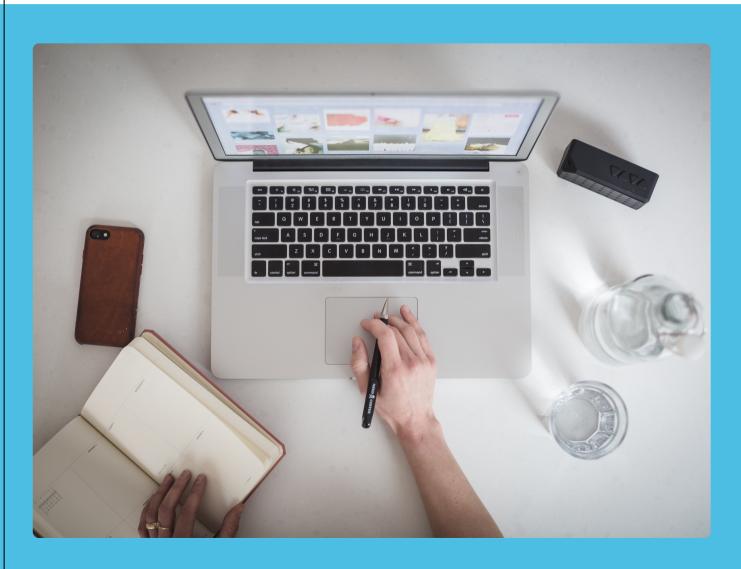# Approaches to teaching and learning with technologies

Erasmus Plus - proPIC Project

Dr Elizabeth Hidson (University of Newcastle upon Tyne, UK)

Teaching and learning with technology

The proPIC project is about helping you to develop your professionalism through innovative digital methods and collaboration with others.

Underpinning this project is the belief that technology is good for teaching and for learning. What do you think?

In this tutorial you will think about technology: how you see it, what it means to teach and learn with technology and how to approach teaching and learning with technology in an informed way.

A general introduction

Figure 1.1 Technologies for teaching and learning

Technology is common in today's classrooms, but how can we use it effectively?

With technology so common, the temptation is to accept that it is useful for everything, including education, without thinking too much about **how** or **why** it might be effective.

As prospective teachers, we need to consider how the technology can be useful for teaching and for learning. The way that teachers teach and the way that students learn can be supported by using technology. Technology can make learning more fun and more engaging if its use is planned carefully and not just as an add-on or as a gimmick.

In this module we ask you to explore some of the theory that underpins the use of technology in education and to develop your opinions about it. Let's start with something **controversial** to see what you think...

Digital Natives

- Mark Prensky is an American educator who has written about game-based learning, teaching and education generally.

- He is a controversial figure because of one key idea - he says that today's learners are **different** because they've been brought up with technology.

- Prensky calls these learners **digital natives**, and he says that educators should alter the way they teach to suit them.

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Watch the two videos to understand both sides of the digital natives debate

Children these days are different. Do we need to teach them differently? Find the video here: https://www.youtube.com/watch?v=tOLfrBFcVFo

Bennett says that stereotyping students leads to potentially ignoring their digital literacy skills.

Think about what Mark Prensky has said, using these questions to prompt you:
- What do you think about Prensky's idea of digital natives?
- Do you consider yourself to be a digital native? Why? What impact might this have on your teaching?
- How might the teaching that you have experienced in your education be appropriate or not appropriate for the students you will be teaching?

Your turn...

In this module we ask you to think critically about technology and what assumptions you have. The digital native debate presents some stereotypes about the learners who will use the technology.

- Discuss these ideas with someone on the course using any suitable digital tools available to you - this could be an online discussion, such as a thread in a conversation or a shared document you work on together.
- Save evidence of this discussion in your ePortfolio , highlighted as **Teaching and Learning with Technology Task 1**

Tick off each task as you have done it. You can return at a later time.

People - how they learn

Figure 1.2 A group of students working together on a problem.

Social learning is one way that people learn. Is it effective? How do we know? What is the impact of technology on learning?

Your response to the previous learning task about **digital natives** will have started to clarify your position on technology. In this section you will think about the **impact** of technology on learning. You will investigate some key theories about the way that people learn and what they may mean for teaching.

But first, watch video 1.4 and think about how technology might change the nature of knowledge and what students need to learn.

Beliefs and values

I. What do you think makes a good **teacher**?

II. What makes a good **learner**?

What makes a good teacher?

What makes a good learner?

Objectivism & Behaviourism

- If you believe that there are objective and reliable sets of facts, principles and theories, which have been discovered already or are waiting to be discovered, you might be an **objectivist**.
- This means that you believe that there is an external truth independent of what humans believe. So, things like the laws of physics stay the same, although our knowledge might evolve as new scientific discoveries are made.
- **Behaviourism** holds that certain behaviour becomes associated with specific stimuli. BF Skinner's theory of learning suggests that teaching machines, measurable learning objectives, computer-assisted instruction and multiple choice tests are useful for for rote learning or standard procedures.

Cognitivism & Constructivism

- **Cognitivists** focus on the mental processes that affect learning, thinking and behaviour, looking at the conditions that influence a learner's mental processes.
- Bloom (1956) is probably one of the most widely known cognitive theorists. Bloom's taxonomy of learning argues that there is a hierarchy of learning that learners must progress through. Watch **video 1.6** for further details.
- If you believe that knowledge is essentially subjective, and that we construct it rather than memorising it, or taking it passively through instruction, then you are probably a **constructivist**.
- **Social constructivists** believe that the process of thinking and reflection that makes up learning is best done through discussion and social interaction.
- For constructivists, learning is a **social** process and one that can be facilitated by appropriate technology.

Interactive 1.5 Bloom's Taxonomy

We've presented a limited overview of the main learning theories that have direct relevance to our project. There are a number of questions for you to think about.

- Discuss these questions with someone on the course using any suitable digital tools available to you - this could be an online discussion, such as a thread in a conversation or a shared document you work on together.
- Save evidence of this discussion in your ePortfolio , highlighted as **Teaching and Learning with Technology Task 3**

- Which areas of knowledge do you think would work best being taught or learned through a behaviourist approach?
- Which areas would would not work as well through a behaviourist approach?
- Explain your thinking and give some practical examples, perhaps from your own experience.
- Think back over your own educational experience and identify an episode of teaching that you think was planned using constructivism as a guiding principle. Explain the context and the purpose of the lesson.
- What are your initial thoughts about Bloom's taxonomy?
- Have you ever used Bloom's taxonomy either in a teaching or learning role?

Interested in learning more about learning theories?

- Explore the **Interactive 1.7**: interactive learning theories map on the next page
- Choose one more learning theory to explore in more detail - write in your ePortfolio to explain what it is and why it interested you.

HoTEL Holistic Approach to Technology Enhanced Learning

Innovators – Opinions – Perspectives

Learning Theory

Learning Theory v6 is a hypertextual concept map of established learning theories 30th April 2013.

This is necessarily a reduction of a complete picture of learning theories, but nevertheless it attempts to map and link key scientific disciplines, theorists, concepts and paradigms.

Part of deliverable D2.2.1 for the HoTEL EU project designed by Richard Millwood
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Key concepts

Learning paradigms or 'world views'

Learning theorists

Scientific disciplines

Text boxes

Knowledge as mental representation:
1a. Knowledge is not passively received either through the senses or by way of communication;
1b. Knowledge is actively built up by the cognising subject;
2a. The function of cognition is adaptive, in the biological sense of the term, tending towards fit or viability;
2b Cognition serves the subject's organization of the experiential world, not the discovery of an objective ontological reality.

The learner is not a passive recipient of knowledge but that knowledge is 'constructed' by the learner.

groups construct knowledge for one another, collaboratively creating a small culture of shared artifacts with shared meanings

knowledge is distributed across a network of connections to people and information - learning consists of the ability to construct and traverse those networks

A human being develops cognitively from birth throughout his or her life through four primary stages of development: sensorimotor (0-2), preoperational (2-7), concrete operational (7-11), and formal operational (11-). Assimilition is incorporation of new experiences into existing mental schema, accommodation changes mental schema.

Principles:
1. Mixed age classrooms, with classrooms for children aged 2½ or 3 to 6 years old;
2. Student choice of activity from within a prescribed range of options;
3. Uninterrupted blocks of work time;
4. A Constructivist or "discovery" model, where students learn concepts from working with materials, rather than by direct instruction.

Education based on science that modified and improved the individual.

The process that occurs between a teacher and student that infuses direct experience with the learning environment and content.

Teacher types: lion-tamer, entertainer and new romantic - the problem of self-judgement in assessment.

An educational movement, guided by passion and principle, to help students develop consciousness of freedom, recognize authoritarian tendencies, and connect knowledge to power and the ability to take constructive action.

Learn naturally if given the freedom to follow own interests and a rich assortment of resources.

School is damaging to education: "The pupil is thereby 'schooled' to confuse teaching with learning, grade advancement with education, a diploma with competence, and fluency with the ability to say something new."

Optimal learning demands that students receive instruction tailored to their learning styles.

Knowledge is continuously gained through both personal and environmental experiences. The learner must:
1. be able to reflect on the experience;
2. use analytical skills to conceptualize the experience; and
3. make decisions and solve problems to use the ideas gained from the experience.

Modifying the goal of learning activity in the light of experience or possibly even reject the goal. Single-loop learning is the repeated attempt at the same problem, with no variation of method and without ever questioning the goal.

A characteristic of an adaptive organization that is able to sense changes in signals from its environment and adapt accordingly.

An organization is created and defined by communication. communication "is" the organization and the organization exists because communication takes place.

A cybernetic and dialectic framework that offers a scientific theory to explain how interactions lead to 'knowing'.

Learning is a social process whereby knowledge is co-constructed and is situated in a specific context and embedded within a particular social and physical environment.

Groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.

The area of capabilities that learners can exhibit with support from a teacher or peer.

The learning of new forms of activity as they are created, rather than the mastery of putative stable, well-defined, existing knowledge and skill.
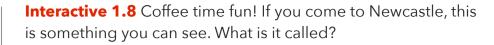
Scaffolding is the support given during the learning process which is tailored to the needs of the student with the intention of helping the student achieve his/her learning goals.

Learners obtain knowledge by forming and testing hypotheses.

New knowledge to acquire is related with previous knowledges.

We have several different ways of learning and processing information, but these methods are relatively independent of one another: leading to multiple "intelligences" as opposed to a general intelligence factor among correlated abilities

In Mastery learning, "the students are helped to master each learning unit before proceeding to a more advanced learning task".

Taxonomy of learning objectives that educators set for students in three "domains": Cognitive, Affective, and Psychomotor. Learning at the higher levels is dependent on achieving lower levels. Designed to motivate educators to focus on all three domains, creating a more holistic form of education.

Teachers takes a central role and transfer their knowledge directly to students through presentations.

Learning as a process of forming associations between stimuli in the environment and the corresponding responses of the individual. Reinforcement strengthens responses and increases the likelihood of another occurrence when the stimulus is present again.

Nodes

constructionism, connectivism, social constructivism, radical constructivism, expressive constructivism, constructivism, genetic epistemology, zone of proximal development, scientific pedagogy, experiental education, Millwood, von Glasersfeld, Piaget, expansive learning, interpersonal relations, Montessori education, Dewey, Vygotsky, scaffolding, critical pedagogy, Montessori, Engeström, discovery learning, homeschooling unschooling, Hargreaves, Freire, Design, Cybernetics, Bruner, meaningful learning, de-schooling society, Holt, Philosophy, Linguistics, Ausubel, Illich, Psychology, Gardner, multiple intelligences, learning styles, Education, Fleming, Bloom, mastery learning, Honey & Mumford, Theology, experiential learning, Organisation, The church, educational objectives, Kolb, Skinner, double loop learning, Argyris & Schön, instructivism, radical behaviourism, organisational learning, Nonaka & Takeuchi, text & conversation theory, Taylor, Social anthropology, conversation theory, Pask, Lave & Wenger, situated learning, communities of practice

Interactive 1.7 Section 2 checklist

Interactive 1.8 Coffee time fun! If you come to Newcastle, this is something you can see. What is it called?

Teaching with technologies

Figure 1.3 What kind of technologies can we use for teaching and learning?

Different technologies have different affordances and constraints. Use them wisely!

We looked at different learning theories in the last section. Teachers who are aware of different learning theories as well as different kinds of technologies are in a good position to make appropriate decisions about how to teach in a particular context. They can also make good choices about technologies that work for particular tasks. Some technologies lend themselves to certain ways of teaching, depending on the characteristics or 'affordances' of the technology - basically, what it can do.
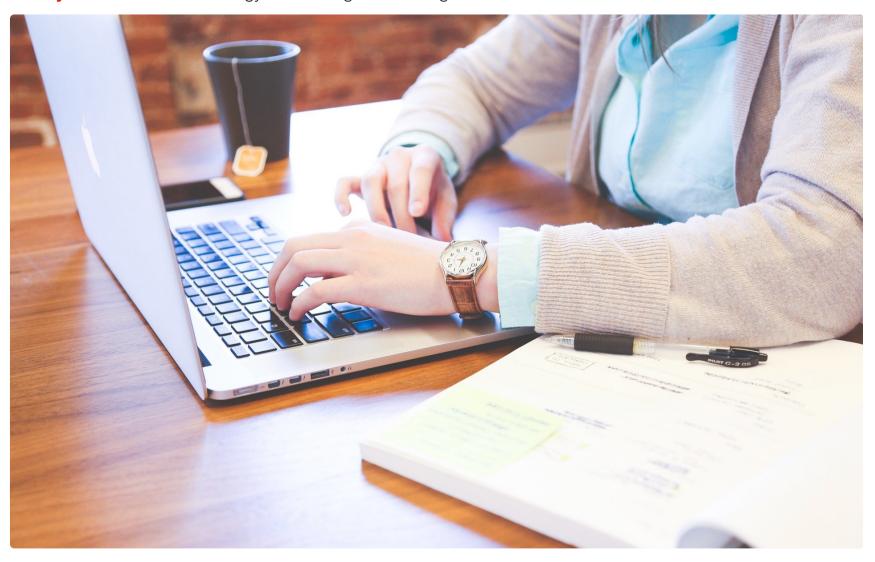
Your choices are going to depend on:
- Your teaching **philosophy**
- How you need to structure and present your **subject matter**
- What **skills** learners need to develop
- Your **imagination**

View Gallery 1.1 to think about how different media and technologies can be used in teaching: record your reflections in your ePortfolio.

Gallery 1.1 Media and technology for teaching and learning

TEXT: Text has been a dominant teaching technology for hundreds of years, whether printed or online. Can we do without text? Can you imagine learning without text? What are the important things to consider when using text in your teaching?

What's the purpose?

If this all feels like a lot to take in, and makes you want to scream, perhaps it's time to think about why using technology might be useful, especially for language teachers.
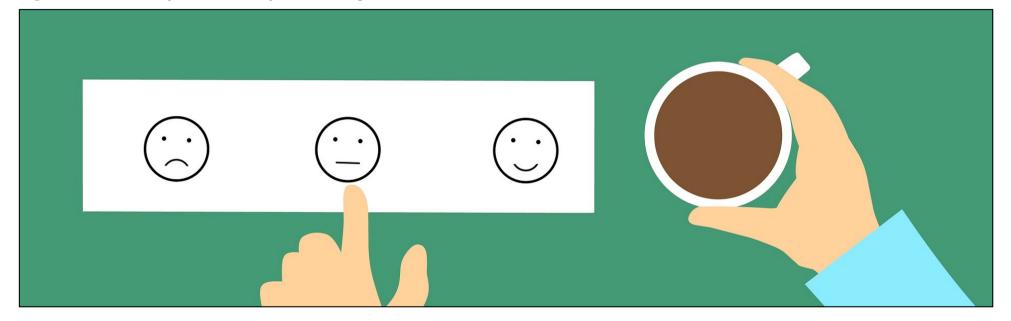
•This module has been an introductory module asking you to think about teaching, learning and technology.

•It has not been about how to use technology, but more about how to think about technology.

•Hopefully, you will now have a set of ideas and beliefs that you can use as you participate in our course, and as you get involved in teaching.

•Your task now is to bring together your ideas and your technology to create a digital artifact of your choosing that you will upload to your ePportfolio.

- You will be able to refer to this at the end of the proPIC course to see if your thinking has changed.
- Save your digital artifact in your Eportfolio , highlighted as **Teaching and Learning with Technology Task 4**

Instructions:

- **Create a multimedia artifact - either a sound file, a video, an animation or a narrated presentation.**
- **It should be a maximum of 3 minutes long**
- **You should talk about the ideas you have encountered in this module**
- **You should describe your own philosophy of teaching with technology - What kind of teacher do you think you will be? What is your approach to technology? What are you trying to achieve as you develop your competence and confidence with technology?**
- **What are your hopes for the proPIC course?**

knowledge is power

knowledge is power

knowledge is power

knowledge is power

ePortfolio evidence checklist

Figure 1.4 How can you evidence your learning for this module?

This is a list of the evidence we think you should have by the end of the module. Make sure it is uploaded to your ePortfolio so that your work can be credited.

1. Task 1 - to think about and discuss online - what you think about the digital native debate. Whichever tools you use to have the discussion should be evidenced in your ePortfolio.

2. Task 2 - to think about what makes good teachers and learners. You can either write this as a blog post or find a graphic that represents your thinking.

3. Task 3 - to discuss learning theories and what you think about them and show evidence of the discussion.

4. Task 4 - to create a digital artifact that captures your philosophy of teaching with technology.

Feedback

We are constantly improving our tutorials. Therefore, it would be great if you could give us some brief feedback on it. Please click on the speaker below.

Thank you!