

# GI Pedagogy

## Section 4

### GI Learner & GI Pedagogy



Co-funded by the  
Erasmus+ Programme  
of the European Union



euro  
geo



St Mary's  
University  
Twickenham  
London

UNED



UNIVERSITEIT  
GENT



# Section 4: GI Learner & GI Pedagogy

## GI Learner - ERASMUS+ 2015-2018

*A focus on resources & pupil centered learning.*

## Now: GI Pedagogy (2020-2022)

*More attention paid to pedagogy.*



Co-funded by the  
Erasmus+ Programme  
of the European Union



euro  
geo



St Mary's  
University  
Twickenham  
London

UNED



UNIVERSITEIT  
GENT



# GI Learner: Learning line

## GI Learner competencies

		K7-8	K9	K10	K11	K12
<b>1</b>	<b>Critically read, interpret cartographic and other visualisations in different media</b>	<b>interpretation</b>				
	A: Be able to read maps and other visualisations	A	B	C		C
	B: Be able to interpret maps and other visualisations					
	C: Be critically aware of sources of information and their reliability					
		Example: use legend, symbology ...				
		Example: use scale, orientation; understand meaning, spatial pattern and context of a map				
		Example: critically evaluate maps identifying attributes, representations (e.g. inappropriate use of symbology, or stereotyping) and metadata of the maps				
<b>2</b>	<b>Be aware of geographic information and its representation through GI and GIS.</b>	<b>learning about</b>				
	A: Recognize geographical (location-based) and non-geographical information	A	B	C		C
	B: Demonstrate that geographical information can be represented in some ways					
	C: Be critically aware that geographic information can be represented in many different ways					
		Example: describe GPS, GIS, Internet interfaces; be able to identify geo-referenced information				
		Example: employ some different representations of information (maps, charts, tables, satellite images...)				
		Example: be able to evaluate and apply a variety of GI data representations				
<b>3</b>	<b>Visually communicate geographic information</b>	<b>produce</b>				
	A: Transmit basic geographic information	A		B		C
	B: Communicate with geographic information in suitable forms					
	C: Be able to use GI to exchange in dialogue with others					
		Example: produce a mental map, be aware of your own position				
		Example: basic map production for a target audience - using old and new media, Share results with target group				
		Example: discuss outcomes like survey results/maps online or in class, referring to a problem in own environment				

<https://www.gilearner.ugent.be/wp-content/uploads/GI-Learner-competencies.pdf>



Co-funded by the  
Erasmus+ Programme  
of the European Union



St Mary's  
University  
Twickenham  
London



# GI Learner: Materials

Age group	Module subject	Teacher version (EN)	Extra material	DE	EN	ES	FR	NL	RO
K7	Student location								
	Physical landscapes								
K8	Tourism								
	Urbanisation								
	Biosphere biodiversity								
K9	Economic disparities								
	Water security								



Co-funded by the  
Erasmus+ Programme  
of the European Union

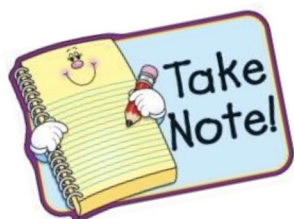


# GI Learner Case Studies



## 1 E.S.O.: Mi localidad

Edad, grupo, nivel de conocimiento y habilidades.	K7 (1º ESO)
Tiempo estimado	50 minutos – 1 tema
Envío de resultados	Documentos de word



**Crea un texto (por ejemplo en Word o en OpenOffice) y guárdalo como Mi localidad**

**Responde a las cuestiones 1 a 4 en tu Portfolio sobre tu localidad, añade los volcados de pantalla que sean necesarios en cada momento.**



Erasmus+ Programme  
of the European Union



geo



Twickenham  
London



UNIVERSITEIT  
GENT



# How to use GIS in education?

- Teach ABOUT GIS
- Teach WITH GIS
- Using innovative pedagogical approaches
- Apply GI Pedagogy model, vignettes and training course



Co-funded by the  
Erasmus+ Programme  
of the European Union



euro  
geo



St Mary's  
University  
Twickenham  
London

UNED



UNIVERSITEIT  
GENT



# GI Pedagogy

- GI Pedagogy is about planning **learning**, not lessons.
- Start with younger students and build up their (and your) skills over time by repeated exposure to GIS.



**If using GIS doesn't improve the learning, then don't feel you have to use it!**



Co-funded by the  
Erasmus+ Programme  
of the European Union



eu  
ge



St Mary's  
University  
Twickenham  
London

UNED



UNIVERSITEIT  
GENT



# GI Pedagogy

GI Pedagogy learning materials / Vignettes are related to **Sustainable Development Goals** because these are considered key goals for the future of our students and our world.

**Geography** as a discipline, **geomedia** as **real world** connection and **critical & spatial thinking** as a competencies are part of the solution.



Co-funded by the  
Erasmus+ Programme  
of the European Union



euro  
geo



St Mary's  
University  
Twickenham  
London

UNED



UNIVERSITEIT  
GENT



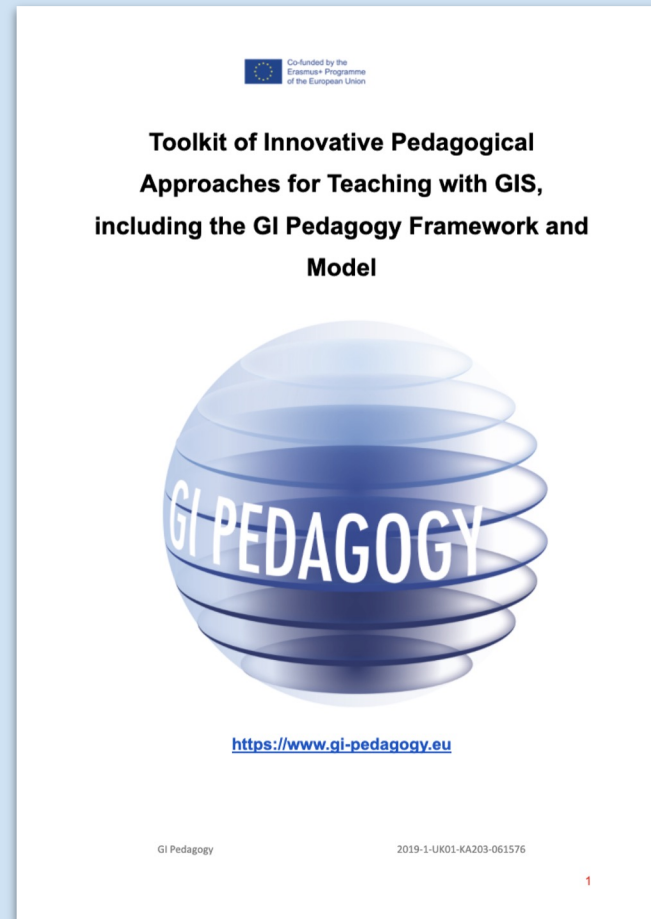


# GI Pedagogy toolkit

Very **practical** guide on how to use GIS in education

Easy to read and understand

Available online [here](https://www.gi-pedagogy.eu) for free



Co-funded by the  
Erasmus+ Programme  
of the European Union



euro  
geo



St Mary's  
University  
Twickenham  
London

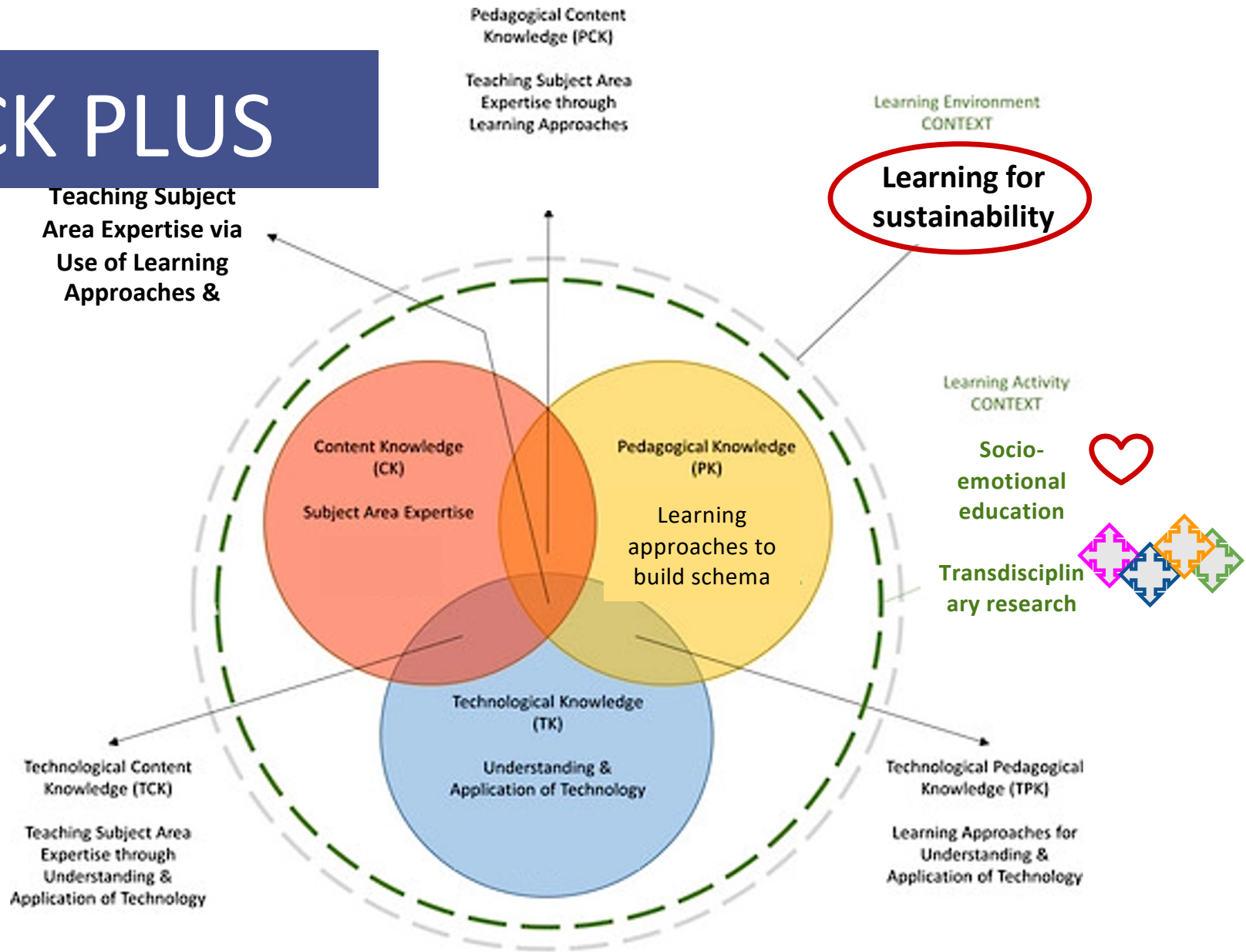
UNED



UNIVERSITEIT  
GENT



# TPACK PLUS



# Learning Sustainability



Co-funded by the  
Erasmus+ Programme  
of the European Union




St Mary's  
University  
Twickenham  
London



# Learning Sustainability



LOs	Learning objectives
	<ul style="list-style-type: none"> <li>• Observe economic inequalities in the world.</li> <li>• Define and describe indicators related to inequalities.</li> <li>• Interpret the same indicators mapped in different viewers.</li> <li>• Explain how changing the intervals on a map can contribute to providing different results using the same data (critical thinking)</li> </ul> <p>Can link to SDGs especially:</p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="237 695 443 903"> <p><b>8</b> DECENT WORK AND ECONOMIC GROWTH</p> </div> <div data-bbox="450 695 656 903"> <p><b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE</p> </div> <div data-bbox="663 695 869 903"> <p><b>10</b> REDUCED INEQUALITIES</p> </div> </div>
Res	Key resources
	<p><b>GIS resources:</b></p> <p>ArcGIS Online platform with data layers related to inequalities and learning how to change intervals on a map, e.g., in this one: <a href="https://arcg.is/015vqy">https://arcg.is/015vqy</a></p> <p>Data and maps in other viewers:</p> <ul style="list-style-type: none"> <li>• World Bank: World Development Indicators: <a href="https://databank.bancomundial.org/source/world-developme">https://databank.bancomundial.org/source/world-developme</a></li> </ul> 



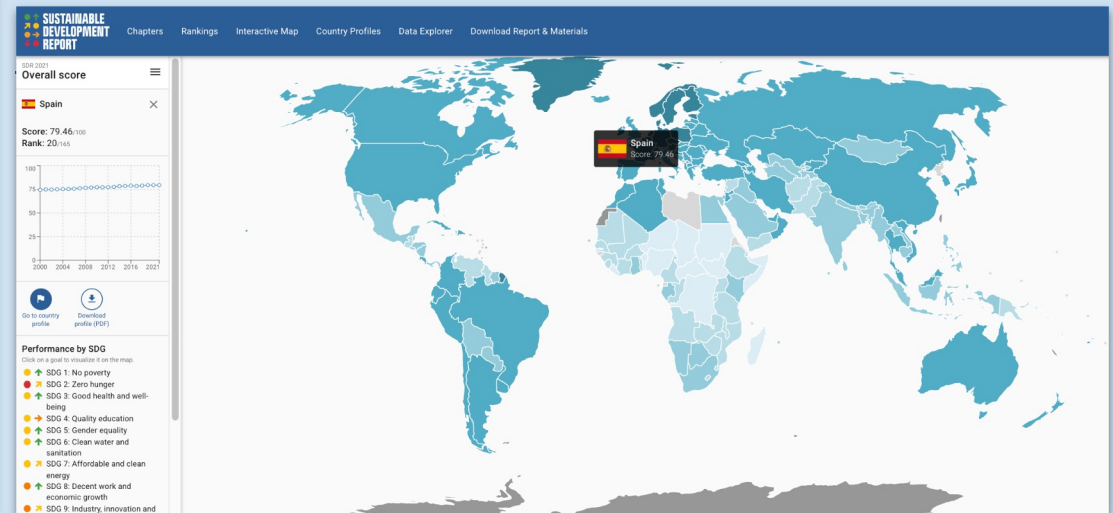
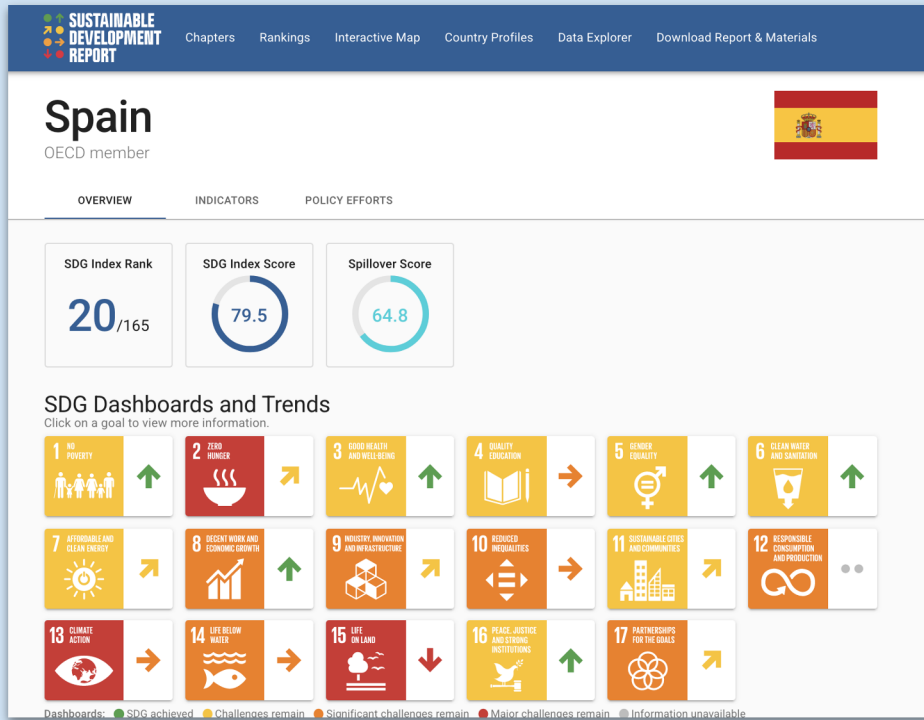
Co-funded by the Erasmus+ Programme of the European Union



# SDGs: Tracking progress



<https://dashboards.sdginde.org>



Co-funded by the Erasmus+ Programme of the European Union

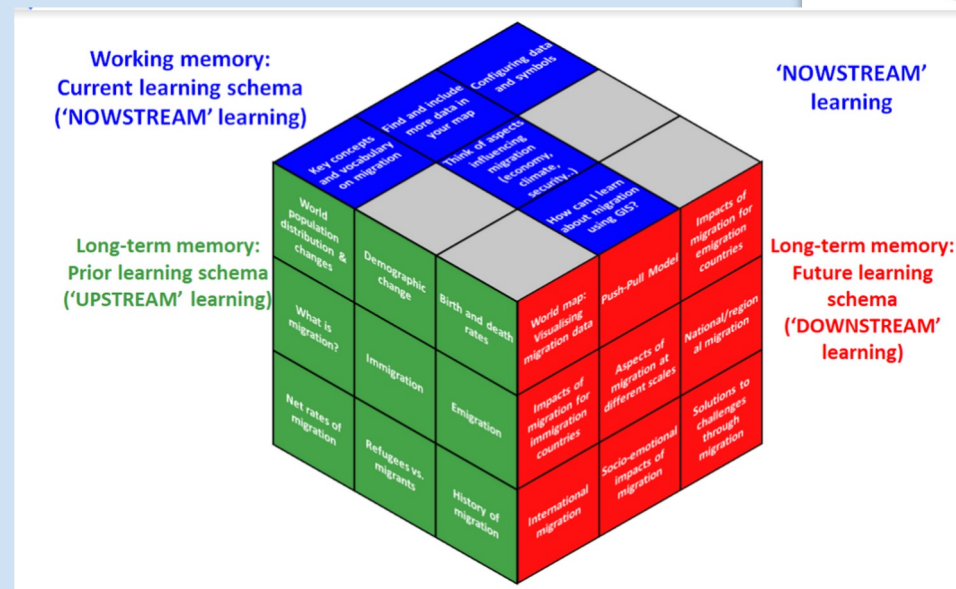


# Vignettes

Learning materials using

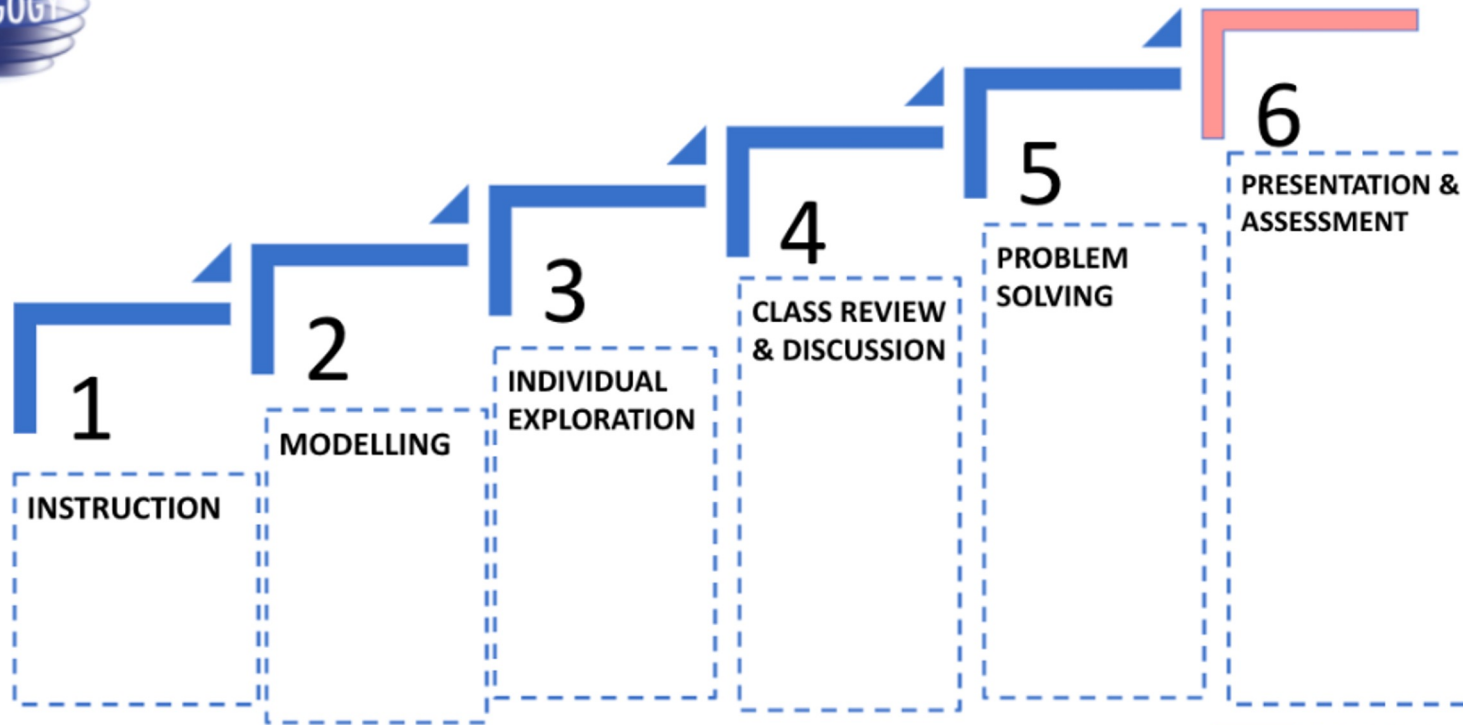
- Concept cube
- Step model
- Principles of instruction

Available online & for free!



Co-funded by the Erasmus+ Programme of the European Union





2019-1-UK01-KA203-061576



Co-funded by the  
Erasmus+ Programme  
of the European Union



euro  
geo



St Mary's  
University  
Twickenham  
London



UNIVERSITEIT  
GENT



# THE PRINCIPLES OF INSTRUCTION

TAKEN FROM THE INTERNATIONAL ACADEMY OF EDUCATION

This poster is from the work of Barak Rosenshine who based these ten principles of instruction and suggested classroom practices on:

- research on how the brain acquires and uses new information
- research on the classroom practices of those teachers whose students show the highest gains
- findings from studies that taught learning strategies to students.



**01 DAILY REVIEW**

Daily review is an important component of instruction. It helps strengthen the connections of the material learned. Automatic recall frees working memory for problem solving and creativity.

**02 NEW MATERIAL IN SMALL STEPS**

Our working memory is small, only handling a few bits of information at once. Avoid its overload — present new material in small steps and proceed only when first steps are mastered.

**03 ASK QUESTIONS**

The most successful teachers spend more than half the class time lecturing, demonstrating and asking questions. Questions allow the teacher to determine how well the material is learned.

**04 PROVIDE MODELS**

Students need cognitive support to help them learn how to solve problems. Modelling, worked examples and teacher thinking out loud help clarify the specific steps involved.

**05 GUIDE STUDENT PRACTICE**

Students need additional time to rephrase, elaborate and summarise new material in order to store it in their long-term memory. More successful teachers built in more time for this.

**06 CHECK STUDENT UNDERSTANDING**

Less successful teachers merely ask "Are there any questions?" No questions are taken to mean no problems. False. By contrast, more successful teachers check on all students.

**07 OBTAIN HIGH SUCCESS RATE**

A success rate of around 80% has been found to be optimal, showing students are learning and also being challenged. Better teachers taught in small steps followed by practice.

**08 SCAFFOLDS FOR DIFFICULT TASKS**

Scaffolds are temporary supports to assist learning. They can include modelling, teacher thinking aloud, cue cards and checklists. Scaffolds are part of cognitive apprenticeship.

**09 INDEPENDENT PRACTICE**

Independent practice produces "over-learning" — a necessary process for new material to be recalled automatically. This ensures no overloading of students' working memory.

**10 WEEKLY & MONTHLY REVIEW**

The effort involved in recalling recently-learned material embeds it in long-term memory. And the more this happens, the easier it is to connect new material to such prior knowledge.



Co-funded by the Erasmus+ Programme of the European Union



St Mary's University Twickenham London





# Conclusions

Use GI Learner & GI Pedagogy materials for your teaching!



Available online & for free!



Co-funded by the  
Erasmus+ Programme  
of the European Union



euro  
geo



St Mary's  
University  
Twickenham  
London

UNED



UNIVERSITEIT  
GENT

