THE UNIVERSITY EDUCATOR'S
TOOL KIT

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In loving memory of our cherished colleague Anna Spyrtou

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Konstantinos Petrogiannis is a Professor of Developmental Psychology at the Department of Education and Early Childhood Care at the University of Western Attica. He previously held faculty positions at the University of Ioannina (1996-2005, Department of Philosophy, Pedagogy, and Psychology), the Democritus University of Thrace (2005-2011, Department of Preschool Education Sciences), and the Hellenic Open University (2011-2021, PMS Education

Sciences, serving on the teaching staff since its founding in 2000). Dr. Petrogiannis completed postgraduate studies in research methodology in social and developmental psychology at the University of Strathclyde (Glasgow, Scotland) and earned a PhD in applied developmental psychology at the University of Wales (Cardiff). His research interests encompass a range of topics, including intra-family relationships and emotional attachment of preschool children, psychological resilience in preschool and primary school children, psychosocial development of children, and intra-family relationships and community relationships of socioeconomically vulnerable groups, such as the Roma community. Dr. Petrogiannis has been actively involved as a principal investigator in 20 European transnational, national, or smaller research projects. Over the past decade, he served as the coordinator for Greece in three major European research programs: the CARE project (European Union-FP7), the ISOTIS project (European Union-HORIZON 2020), and the PARTICIPA project (European Union Erasmus KA2). He also has a history of service to the field, having been the Coordinator of the Developmental Psychology Department of the Hellenic Psychological Society (ELPSE) for several years and a three-time member of the Board of Directors of ELPSE.

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INTRODUCTION

Zoe Gavriilidou

This is the English translation of the original University Educator's Toolkit, initially published in Greek in June 2023 as part of the project "Horizontal Action of Higher Education Teaching and Learning Centers " (MIS code 5164469). The English version of the toolkit is dedicated to the loving memory of Anna Spyrtou, the Vice Rector of Administrative Affairs and Holistic Care at the University of Western Macedonia, who passed away in December 2023. Anna was a beloved colleague whose warmth, dedication, and vibrant spirit left a lasting impact on the lives of all who had the privilege of knowing her. Although her presence is deeply missed, her influence and kindness continue to inspire us within the Network of Learning and Teaching Centers.

How do students learn? Does the teaching approach in university classrooms effectively motivate learning? What characterizes student-centered learning, and how can we actively support it? These are the questions addressed by this Toolkit, recognizing that effective teaching extends beyond the mere presentation of content, even when leveraging new technologies or support materials. The focus is on ensuring meaningful learning experiences, understanding the nuances of how students learn, identifying avenues for improvement, and creating a conducive learning environment that promotes, encourages, and enables high-quality learning. Tailored for educators across all categories in Greek universities, the toolkit comprises resources aimed at enhancing teaching and learning practices at the university level. It emphasizes integrative teaching approaches that:

a. Foster students' awareness of their learning strategies and emphasize the significance of fundamental questions in science, focusing on key concepts (big ideas).

b. Situate students in scenarios that necessitate the application of problem-solving skills.

c. Cultivate an environment where students critically engage with the central ideas of the lesson through practical application.

d. Evaluate learning outcomes through formative assessment techniques, incorporating various assessment methods to promote the adoption of deeper approaches to learning.

> **On the one hand, the aim is to highlight, in a simple way, those practices that treat learning as an ongoing, active process—aimed at understanding the world, constructing meaning, and acquiring new knowledge.**

This perspective fosters deeper learning approaches characterized by students' proactive intent to seek and construct meaning by establishing connections between their prior knowledge and new information. It encourages critical evaluation, a focus on key concepts, engagement in high-level cognitive processes, metacognition, and the ability to self-regulate their learning.

The toolkit comprises 9 chapters, each providing valuable insights into various aspects of teaching and learning. In Chapter 1, Kallia Katsamboxaki-Hodgetts delves into the description of active learning teaching practices and their cultivation in the classroom. The second chapter, written by Lydia Mitic, introduces techniques and approaches that enhance strategic learning. Chapter 3, guided by Efi Penteri, explores the concept of assessment for learning and its profound connection to empowerment, emancipation, and sustainable development within the educational process and its supporting agencies. In Chapter 4, Zoe Gavriilidou elucidates the principles of equity, access, and inclusion in teaching and learning, detailing how these principles are effectively implemented in the classroom. Moving forward, Chapter 5, presented by Katerina Kedraka, acquaints readers with soft skills and their acquisition by emerging adults in the educational setting. Chapter 6, facilitated by Yiannis Lefkos, discusses the multifaceted ways in which digital technologies can support active learning, collaborative activities, and inclusive approaches, fostering student-centered learning and teaching. In the 7th chapter, Ifigenia Dosi outlines good practices for teaching individuals with learning difficulties, while Chapter 8, led by Thanasis Koutsoklenis, presents effective approaches for teaching individuals with blindness or low vision. Lastly, in the 9th chapter, Konstantinos Petrogiannis focuses on the specialized realm of "teaching" within supervision/research work. Here, supervising professors shoulder distinct responsibilities and roles, encompassing not only the supervision of the work and the development of research skills but also the crucial provision of emotional support to students navigating potential feelings of frustration. Each of the 9 chapters follows the same structure: it starts with a short introduction, explains what the chapter is about (Understanding what is…), provides background knowledge (What we need to know), and classroom practices (What we need to do), justifies the importance of the chapter topic (Why it is important), leads to reflection on the teaching practices of the reader teacher (Reflect on your teaching practices), and finally provides useful resources and materials (Useful material).

How to use the Toolbox

	You will learn about the learning needs of different groups of students
	You will reflect on your own teaching practice
	You will become familiarised with new teaching approaches

You will understand how these new teaching approaches improve the learning of different groups of students

You will be informed about the importance of strategic learning

1. ACTIVE LEARNING

Kallia Katsamboxaki Hodgetts

Understanding active learning

➤ It is a pedagogical approach grounded in the principles of constructivism (Kilgo et al., 2015; Prince, 2004; Sivan et al., 2000) with a primary focus on fostering the active participation of students and enhancing their academic performance (Smith & Cardaciotto, 2011; Hakami, 2020; Hartikainen et al., 2019; Hao et al., 2021). This approach emphasizes student engagement and learning through hands-on experiences, even if the students may not perceive the benefits directly or immediately (Lobo, 2017).

➤ It is one of the seven principles of basic education (Chickering & Gamson, 1987) that underscores the application of knowledge in everyday life and the provision of diverse opportunities for articulation. This involves students expressing what they have learned, both in written and oral forms, and engaging in self-reflection (Chickering & Gamson, 1987: 4) to assess their progress,

➤ It is also defined as a series of participatory, cognitive, and metacognitive activities that 'involve students doing something and thinking or reflecting on what they do' (Bonwell & Eison, 1991). This approach structures knowledge through activities within a social context, aligning with the principles of cognitivism and constructivism. Through these activities, students not only explore their own attitudes and values (Bonwell & Eison, 1991: 2) but also develop essential skills in learning how to learn.

What we (should) know about active learning

○ Aligned with Bloom's taxonomy, the objective of the activities is not merely memorization but rather the cultivation of higher-order cognitive processes, including analysis, comparison, classification, and evaluation, which students engage in throughout a course or lecture (Anderson et al., 2001). The emphasis is on promoting critical thinking and a deeper understanding of the subject matter.

○ The significance lies not solely in the specific content that students learn but also in what they do with that knowledge in practice. It is about how they actively transform and structure information by creating interconnected mental schemas and engaging in metacognitive participatory learning

processes. This occurs within an environment of mutual trust, emphasizing collaborative and interactive student interactions.

o Regarding digital media or the internet, the 'Online Engagement Framework for Higher Education' (Redmond et al., 2018) (Figure 1) proposes a combination of structural components, encompassing social, cognitive, behavioral, collaborative, and affective commitment to participation on the part of students (Table 1).

Building Blocks of Active Student Engagement	Δείκτες
Social engagement	Collaborative learning for the completion of tasks
Creating a learning community	Creating a learning community Fostering a sense of belonging Cultivating social relationships Nurturing a climate of trust
Monitoring/Trial/Identification	Cultivation of critical thinking Activation of metacognitive skills Inclusion of different perspectives/ideas Documentation of decisions Development of understanding in the cognitive subject Redistribution of activities leading to specialized knowledge
Behavioral engagement/participation	Development of academic skills Identification of learning difficulties or opportunities Cultivation of interdisciplinary skills Active engagement Adoption/advocacy of online learning rules Support and encouragement of peers
Collaborative engagement/participation	Learning with peers Networking with faculty members Connecting with opportunities within the University Developing professional networks
Emotional engagement/participation	Expectation management Formulation of hypotheses Recognition of motivations Commitment to learning

Table 1. Online Engagement Framework for Higher Education

- o In relation to social involvement, emphasis is placed on purposeful planning with the aim of learning through the 'collective experience' (Knight, 2013: 73) in academic as well as non-academic settings, both inside and outside the (online) classroom. Social engagement is crucial when students collaborate with peers, assess and/or complete learning tasks, contributing to academic progress through socio-emotional participation and purposeful social interactions (Sinha et al., 2015).
- o According to the ICAP (Interactive-Constructive-Active-Passive) theoretical framework, the type of activity used in the classroom affects student learning and engagement differently. Consider, for example, what happens when we ask students to take notes:
  - α. If you ask them to copy the notes verbatim from the slides, that is a passive activity.
  - β. Asking them to summarize a text or a lecture in their own words, adding their own conclusions, is considered a constructive activity.
  - γ. If you ask them to use digital media to take notes in collaboration with others, then we are talking about interaction (I), according to the theoretical framework ICAP.

What we can do in class

Below, you will find popular and effective teaching practices consistent with the above theoretical principles:

Team-Based Learning (TBL)

Team-Based Learning (TBL) is a pedagogical strategy that engages students in mental processes through individual and group processes. Students complete an activity (e.g., problem-solving, case study, investigation) first individually, and then they join groups with the goal of reaching consensus on the answers by all group members. This strategy has also replaced exams in many universities (see two-stage exams in useful resources) because it provides opportunities for articulation, feedback, collaboration, and reflective alignment with the learning outcomes at the group level.

Why active learning is important

Active learning provides opportunities to cultivate cognitive, metacognitive, and social skills within a structured learning environment. The importance of active learning is evident in three teaching/learning strategies: team-based learning (TBL), the jigsaw method, and reflective alignment with learning outcomes and goals.

Why the MBO strategy is important

The main objective of this strategy is for students to take full responsibility for their own learning in combination with valid and targeted feedback from lecturers. Students learn that they can acquire new

knowledge through collaboration and at the same time that lecturers provide specialised knowledge, but are not the only source of knowledge.

The Think-Discuss-Share activity (Think-Pair-Share)

The activity is brief and can be done with or without the use of digital media, similar to the previous one, through three steps.

➤ **First Stage.** Students think for themselves: teachers pose a short problem, scenario, or question for the students to work on individually for a minute or two. They read the question aloud while projecting it onto a slide that they share with the students (using Zoom's screen-sharing feature or a projector).

➤ **Second Stage.** Students discuss in pairs. Teachers invite students to discuss in pairs for 5 minutes and share their thoughts on the problem assigned to them.

➤ **Third Stage.** Share with the plenary. Representatives from each pair are asked to share points of agreement or points of disagreement with the whole group. Before providing feedback, teachers can ask other students the same question.

Why the Think-Pair-Share strategy is important

This strategy allows students who need more time or who are hesitant to speak in the plenary to have opportunities to articulate their thoughts—that is, to express how they have transformed their knowledge to others without feeling embarrassed. It also allows, depending on the question, the cultivation of metacognitive and social skills.

Jigsaw strategy

The Jigsaw strategy supports cooperation and is based on the theory of constructivism. While it has some focus on STEM disciplines, it has been applied to other subjects as well, promoting deeper and more meaningful learning (Paulson, 1999, Knowledge Object: Organic Chemistry) by creating appropriate learning conditions (Nokes-Malach, Richey & Gadgil, 2015). Jigsaw provides mechanisms for differentiated instruction by allowing either discussions with peers or more time, or providing the possibility for the teacher to answer questions for each group separately.

The following steps are taken by teachers using the method.

Step 1

They present students with a complex and multifaceted problem, necessitating the application of various approaches and enabling analysis from diverse perspectives.

Step 2

Group members within student groups are selected based on students' abilities and/or personalities to establish diverse teams. In instances where this strategy is frequently employed, it is advisable to periodically rotate these heterogeneous group.

Step 3

Within each student group, educators designate a leader tasked with coordinating activities and ensuring an equitable distribution of responsibilities. Initially, the groups are organized into "expert" groups, which are subsequently reconfigured into mixed groups.

Step 4

Each group is assigned a distinct task or prompt, such as reading new materials or approaching a problem from a diverse perspective. The initial groups collaboratively address guided questions before transitioning to mixed groups, where they exchange insights on their respective readings. In these mixed groups, participants may be required to synthesize similarities, differences, or contemplate the broader application of all the readings to a theory, concept, or the overall learning objective for the day (Tomaswick, 2017).

Why the Jigsaw strategy is important

Aronson and his colleagues (1970) devised the Jigsaw strategy to mitigate classroom competition, fostering active listening, communication, teamwork, critical thinking, and autonomy among students (Perkins & Saris, 2001). This approach aids all students in comprehending and reflecting on new knowledge by prompting them to establish connections between their existing knowledge and emerging concepts, primarily addressing two common challenges: the inclination of 'dominant' students to exert control and the impediment to active involvement for all students.

Reflective alignment activities

Instructors solicit responses from students through self-assessment questions, prompting them to evaluate their acquisition of new knowledge and their ability to achieve the anticipated learning outcomes. Additionally, students are encouraged to identify areas of uncertainty regarding the recently

acquired knowledge. Feedback from teachers can be delivered promptly, especially when digital media is employed, or during subsequent iterations of instruction for the same student cohort.

Why this strategy is important

This strategy facilitates students' self-regulation and the development of metacognitive skills. When complemented with targeted feedback, it proves highly advantageous in rectifying misconceptions. When integrated with suitable supplementary resources, it aids students in aligning with course objectives and enhancing their academic progress.

Reflect on your teaching practices

1. Do you pose questions in the auditorium in a manner that facilitates the collection of responses from the majority of students?
2. Do you ask your students to discuss a topic in groups or in pairs?
3. Do you ask your students to solve a problem on their own and show their answer to the person next to them for feedback?
4. Do you ask your students to read a text before the lecture so they can participate in group activities during what would be a "traditional" lecture otherwise?
5. Do you ask your students to engage in self-assessment using pertinent data and criteria?
6. Do you encourage your students to identify and highlight aspects of the course that were unclear?
7. Do you ask students to present newly acquired knowledge to their peers?

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2. TEACHING STUDENTS TO LEARN HOW TO LEARN

Lydia Mitic

Understanding what 'learning how to learn' means

While there exists a common understanding of the concept of learning, it often rests upon various assumptions. As educators, there is a prevalent assumption that the act of teaching inherently results in student learning. Conversely, students may assume mastery of a subject based on their engagement with relevant materials and the memorization of facts. However, contemporary discussions on learning in 21st-century society, particularly within the context of technology and artificial intelligence, emphasize the notion of lifelong learning, especially heightened in the aftermath of the Covid-19 pandemic. Educators express dissatisfaction with both students' attendance and the completion of assignments. Furthermore, they note a predominant focus among students on grades rather than a genuine interest in the knowledge being acquired. Conversely, previous research highlights a lack of student interest in courses, underscoring their failure to recognize the inherent value of the content. Moreover, critics assert that many educators heavily rely on lectures as a means to transmit information, potentially contributing to a disconnect in student engagement

Considering the aforementioned assumptions and an examination of pertinent literature, there is a consensus that the contemporary emphasis in education is transitioning from teaching to learning. Consequently, a curriculum's primary objective should be centered on instructing students on how to learn, thereby necessitating a shift in the role of educators from knowledge transmitters to facilitators of its acquisition.

The inquiry into the process of learning finds clarification in Bloom's classification of learning (1956). Bloom and his collaborators delineated three principal domains of learning:

- o cognitive
- o emotional
- o psychomotor

Regarding the cognitive domain, we observe six levels of learning presented in the table below, along with indicative examples from the field of Geology.

Level of thinking		Example of a question aimed at learning
1	Knowledge	Define the «mineral» (information)
2	Understanding	Explain why some crystal surfaces grow faster than others (understand the concepts)
3	Application	With respect to the 1994 flood in Minnesota, calculate the frequency of floods of this magnitude. (application to new scenarios)
4	Analysis	Compare the distribution of earthquakes along mid-ocean ridges with those of subduction zones (organization and patterns)
5	Synthesis	Use the sequence of rocks exposed along the Mississippi River to construct a model of sea-level changes during the early Paleozoic. (generalization, generating new ideas)
6	Assessment	Assess the arguments for and against the evidence of fossilized life in meteorites from Mars (assess the value of the evidence)

Table 1. Levels of learning. Source: Wirth & Perkins (2008)

In the early 21st century, Anderson and colleagues (2001) highlighted that there are four categories of knowledge in the cognitive domain, each demanding different types of learning. These are:

➤ **Factual:** Constituting individual and distinct elements of content, this category encompasses the essential components that students must acquire to familiarize themselves with a discipline or solve problems within it. Examples include terminology, specific details, and foundational elements.

➤ **Conceptual:** Involving the interrelationships among basic elements within a broader structure, this category includes knowledge of classifications, categories, principles, generalizations, theories, models, and structures.

➤ **Procedural:** Encompassing knowledge of how to perform tasks, this category includes techniques, methods, algorithms, and skills required for executing various actions.

➤ **Metacognitive:** Pertaining to the knowledge that an individual possesses about their own cognitive functions, this category includes strategic knowledge, self-awareness, as well as appropriate contextual and conditional knowledge.

Furthermore, a few years later, another classification known as the "Taxonomy of Significant Learning" was introduced, incorporating aspects from both the cognitive and emotional domains. This taxonomy underscores that learning entails a form of enduring change that holds significance in the learner's life. One category within this taxonomy is "Learning How to Learn," centering around the following questions:

- o How do I become a better student?
- o o How do I research a topic?
- o o How do I direct my own learning?

It is evident that comprehending students' needs and elucidating how they will attain learning has emerged as a central topic of discourse in the academic realm of the 21st century. Significant Learning empowers students to engage in continuous learning more effectively, a crucial skill in light of the recent proliferation of knowledge and technology. Grasping the essence of knowledge in every subject stands as a fundamental facet of effective learning in higher education. Furthermore, students should cultivate an awareness of their role as learners, evolving into independent learners capable of assuming responsibility for their own learning. Additionally, they should develop the ability to actively participate and critically approach new knowledge, rather than merely receiving it passively. Therefore, the acquisition of learning strategies at the university level can be categorized into two primary domains:

1. learning and how to become independent learners,
2. knowledge and the cultivation of the ability to autonomously construct one's own knowledge within the framework of a scientific discipline.

Independent learning necessitates students' transition from a previous school environment, where teachers predominantly undertook the planning, monitoring, and assessment of learning, to a setting in which they must take on a substantial responsibility for planning, monitoring, and evaluating their own learning. Higher education demands critical thinking skills and the application of knowledge across various contexts. Moreover, students should develop a profound understanding of learning processes, as misconceptions about university learning significantly contribute to student failures. It is evident that many contemporary students require assistance, personalized attention, and support from their instructors to accomplish these objectives. Therefore, establishing a mutual understanding between teachers and students regarding the meaning of "knowing" in their specific field of study and the essence of the learning process is advisable right from the commencement of each lesson.

What we (need to) know

An approach, in which learning takes place simultaneously and through the teaching of each subject matter, has been proposed in the literature. However, many teachers are unwilling to support student learning as part of their teaching. In general, we can distinguish two broad categories of teaching, teacher-centered and student-centered. In the first case, the prevailing perception is that the teacher's role is to provide knowledge and not to support student learning. Research shows that many university teachers fall into the first category. In addition, teachers' expectations from students can be very high. It is important that teacher assumptions about student abilities change and that an open discussion begins between teachers and students about expected approaches to learning.

In the following table, the components of *learning how to learn* are presented.

I. Understanding learning and becoming an independent learner	II. Understanding 'knowledge' and becoming competent in constructing knowledge
1. Awareness of concepts of learning and knowledge in science	1. Awareness of perceptions of learning and knowledge in science
2. Assessment of personal skills at a given moment	2. Accessing information from the student's perspective (lectures, material) in a focused and critical way
3. Defining short and long-term goals and objectives	3. Assessment of existing knowledge
4. Action planning for achieving the objectives	4. Synthesis of different sources into coherent arguments
5 Monitoring progress towards the achievement of objectives	5. Formulation of views
6. Assessment of progress and results	

Table 1. The ingredients of 'learning how to learn'. Source: Wingate (2007)

Metacognitive skills

What is metacognition?

Metacognition is an individual's awareness of their cognitive functions, encompassing their understanding of the knowledge or information they possess. It essentially pertains to what a person knows about their own knowledge (or lack thereof). Consequently, metacognitive skills empower individuals to discern when their current level of understanding is inadequate. This capacity for planning, self-monitoring, self-regulation, and self-assessment extends beyond general knowledge of cognitive processes and strategies to include an understanding of the suitable conditions for deploying these strategies and overall self-awareness. Research indicates that metacognitive skills cannot be effectively taught in isolation; participation in a standalone metacognition course is insufficient. Instead, individuals must learn and apply metacognitive skills within the context of acquiring subject-specific knowledge. As individuals engage in the learning process, certain questions should guide their approach:

What am I trying to achieve? What is the best strategy for me to learn? Do I progress? Have I achieved it?

his form of self-monitoring and reflection not only fosters deeper and more effective learning but also establishes the foundation for evolving into an autonomous learner.

What is self-regulated learning?

It is the learner's capability to regulate their learning in the pursuit of their goals, incorporating a set of structural elements (i.e., building blocks) that can be flexibly combined in various ways to manage the learning process.

Crucially, metacognitive, cognitive, and affective strategies synergize not only to impact the learning experience but also the manner in which a student governs their own learning within specific context(s).

In the table below, the metacognitive, cognitive, and affective dimensions of self-regulation are illustrated.
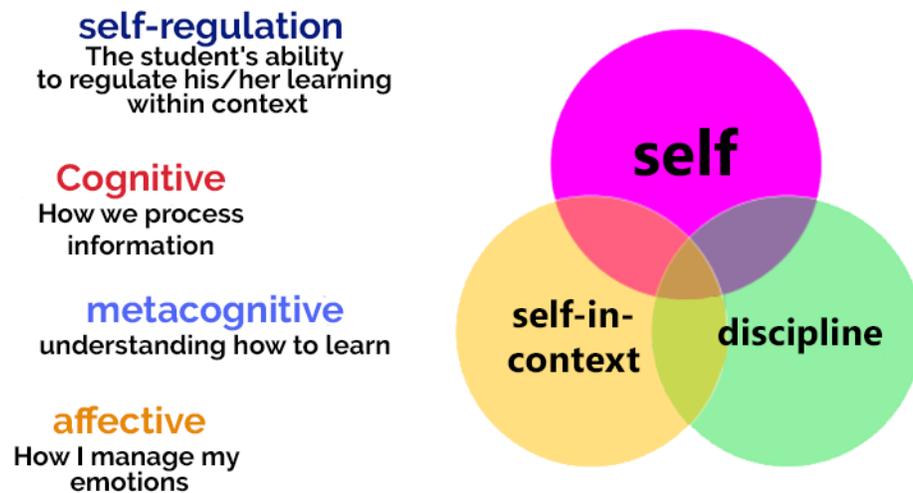

Figure 1. The dimensions of self-regulation. Source: Zeidner et al., 2000

Construct	Definition
Metacognitive	
1 Orienting and Planning	Ability to accurately discern the important elements and requirements of a task Plan of action clearly aligned to goals Alignment of own goals with institutional goals Self-responsibility for managing task Prioritising activities to support goals Flexibility and Adaptability
2 Monitoring/Testing/ Diagnosing	Accuracy of Monitoring – progress occurring in intended direction Good at Noticing- sensitive to information to support decision-making Testing and Diagnosing – if and where any problems lie. Seeking out appropriate high quality Support- accurate assessment of skills/knowledge gaps and ability to plug the gaps Actively giving, seeking, and acting on feedback.
3 Adjusting	Flexibility / Adaptability: introducing changes to plans / asking for more support
4 Evaluating/ Reflecting	Accuracy in Judging the extent to which intended outcomes are achieved. Reflexivity: ability to step outside oneself and see things from alternative perspectives.
5 Agentic Engagement	Ownership of Process: management of agency and autonomy Ability to manage environments to suit learning needs to maximise affordances
Construct	Definition
Cognitive	
1 Relating/Structuring	Looking for connections Bringing together different elements (holistic thinking)
2 Analysing	Breaking down information into steps (serialist thinking)
3 Concretizing/Applying	Trying to form concrete images from abstract information- looking for relevance Using knowledge in a new way Trying to solve problems Improvising
4 Memorizing/Rehearsing	Rehearsing material regularly so it can be reproduced/becomes automatic
5 Processing Critically	Drawing own conclusions rather than accepting what is said Actively seeking meaning Evaluating sources
6 Selecting	Filtering – distinguishing what is most important
Construct	Definition
Affective	
1 Motivating/Expecting	Building up willingness to learn

	Setting realistic learning goals and targets Self-reward for meeting set goals Taking pleasure in achieving interim goals Setting expectations around success and failure
2 Concentrating / Exerting Effort	Attending in the moment Expending effort Sustaining concentration and effort (persistence)
3 Attributing/Judging Oneself	Accuracy in attributing outcomes to causal factors Ability to manage own learning Awareness of levels of competence and general and task-specific self-efficacy Ability to have perspective
4 Appraising	Appraisal of task relevance Ability to change direction Future-time perspective
5 Dealing with Emotions	Generating, maintaining, and restoring positive feelings of well-being, self- confidence, and commitment Managing feedback Coping with negative emotions Reassuring oneself Managing stress Dealing with failure including bounce back-ability
6 Network management	Good at noticing situations and contexts Ability to navigate networks and adapt to new situations/contexts and to read them accurately Ability to prioritise networks (prune and develop) Ability to engage with and support others

Table 3. Metacognitive, Cognitive and Affective Dimensions of Self-Regulation Πηγή: Evans (2014, 2015), Vermunt & Verloop (1999)

Metacognition, self-regulated learning and the use of learning strategies

Certain students demonstrate a higher proficiency in employing learning strategies than others. The term "learning strategy" can be defined as specific thoughts and behaviors that individuals employ to aid their comprehension, learning, or retrieval of new information. There exists variability among learners in their ability to activate metacognitive flexibility, signifying the capacity to adapt strategies to better address the needs arising in different situations. The utilization of self-regulation strategies in learning is not solely contingent upon the ability to self-regulate and possess metacognitive awareness; rather, it is influenced by mediating factors such as personal characteristics (e.g., motivation) and the nature of the task at hand (e.g., assessment format).

Nevertheless, a well-designed curriculum should encompass the development of learning strategies in individual students and foster self-regulation, as it significantly contributes to the effective utilization of strategies by all students. Additionally, it is recognized that the design of the learning environment, including its philosophy and characteristics, exerts a substantial impact on the effective self-regulation of students.

What we can do in the classroom

"Learning how to learn" at the university level is a complex process of personal development that involves changing perceptions, learning habits, and beliefs. Simultaneously, it requires systematic and comprehensive support from teachers. How can educators best support their students in achieving this?

Framework for Coherent and Integrated Learning Source: Wingate (2007)

Objectives
  Students to gain awareness of conceptions of learning and knowledge in discipline.
Context
  Pre-induction course
  Induction course
Agent
  Online material
  Subject and personal tutors
  Methods
  1. Case studies with relevant questions (↔ induction 1)
  2. Self-profiling questionnaire (↔ induction 2)
  1. Small group discussions based on case studies and/or reports by second-year students (↔ pre-induction 1)
  2. Introduction to reflective tools (↔ pre-induction 2; ↔ personal tutorial 2)

2. Teaching students to learn how to learn

Objectives

Students to
– assess their abilities as learner
– set goals and targets
– plan action
– monitor and evaluate progress

Context

Personal tutorial

Agent

Personal tutor (online materials)

Methods

1. Regular discussions between tutor and student
2. Reflective tools: self-assessment questionnaires, action planning forms, diaries, portfolios and progress evaluation forms (↔ induction 2)
3. Personal tutors encouraging students to observe processes of knowledge construction in the classroom (↔ classroom 1)
4. Personal tutors encouraging students to take an active role in classroom and to monitor this role via reflective tools (↔ personal tutorial 2, ↔ classroom 2)

Objectives

Students to
– approach information in a focused and critical manner
– evaluate existing knowledge
– synthesise different sources into a coherent argument
– express own voice

Context

Classroom

Agent

Subject tutors (online materials)

Methods

1. Tutors demonstrating, modelling critical approach to information and construction of knowledge (↔ personal tutorial 3)
2. Teaching approach that encourages students to think critically and debate (↔ personal tutorial 4)
3. Assessment methods that facilitate students' development into knowledge 'creator' rather than recipientόχι ως αποδεκτών της γνώσης

*More ideas can be found on the website of the Centre of Teaching and Learning of the Democritus University of Thrace

Why it is important

Learning how to learn at the university level requires a fundamental shift in the beliefs of young people, as they need to understand the responsibilities associated with being a student in higher education. They must become independent, autonomous learners and take charge of their own learning. Independent learning necessitates that students move away from their previous experiences in secondary schools, where learning is planned, closely monitored, and assessed by teachers. They must adapt to a university culture in which they plan, monitor, and assess significant portions of their learning independently. Students should actively share learning responsibilities and contribute to learning activities. Moreover, they need to learn how to actively and critically engage with knowledge, rather than passively receiving it. In higher education, teachers should consider all of the above when designing course learning objectives, especially with regard to acquiring new skills and enhancing their students' abilities.

Reflect on your teaching practices

Do I know how I can help my students develop learning strategies specific to my field of knowledge?

How can I engage my students in developing problem-solving strategies and critical thinking skills?

Critical thinking involves a variety of skills, including the ability to identify a specific source of information and reflect on its relevance to one's existing knowledge. Can I provide a specific example from my course to illustrate how to encourage critical thinking in my students?

➤ Some activities that help practice critical thinking include: (a) Comprehension activities, such as generating self-questions before or during reading to focus attention, b) Creating graphs and tables based on requested data, (c) Participating in class discussions, (d) Developing arguments for paper writing, etc.

Do I advise my students to do the following? Do I explain to them my approach when tackling a task?

- o analyze the learning task requirements,
- o interpret learning task requirements,
- o set specific goals,
- o choose appropriate strategies,
- o apply strategies,
- o track your progress (internal feedback),
- o adjust your strategies,
- o use self-motivation strategies,

- o continue working even though you are struggling,
- o evaluate the outcome and the process.

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3. ASSESSMENT FOR LEARNING AND QUALITY ASSURANCE IN A SOCIO-EDUCATIONAL CONTEXT

Euthymia Penteris

Intoduction

Developing an evaluative culture for the quality of learning

Assessment for learning is not merely another assessment method; rather, it stands as a pedagogical innovation grounded in the commitment of all participants in the educational process to improvement and change. In higher education, assessment for learning is intertwined with the quality assurance processes of university institutions, ranging from the evaluation of learning outcomes in each course to the apex of the Assessment Pyramid, where institutional assessment resides (refer to Figure 1). Here, our focus will be on the initial level—course-level evaluation and student assessment.
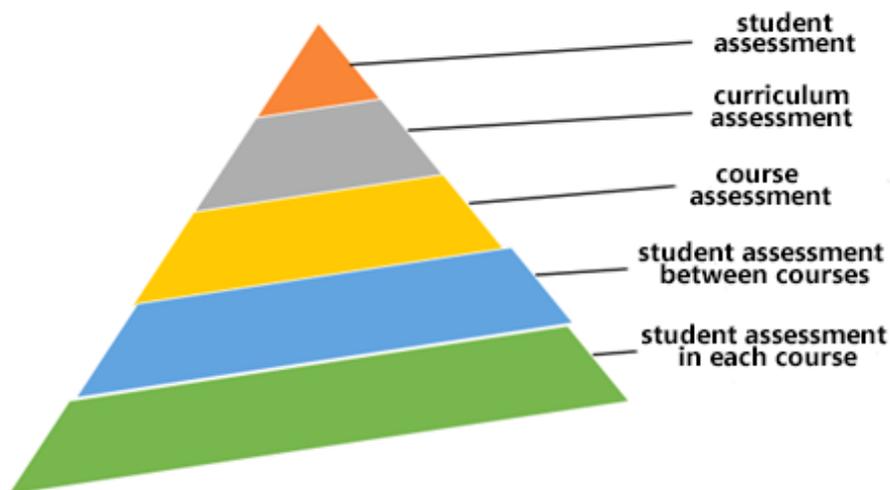

Figure 1. Assessment Pyramid of Learning in Higher Education

In the context of assessment as learning, it is crucial to recognize that the learning processes within each course and the assessment of students' learning outcomes are not solely the concern of individual teachers; rather, they are integral components of a broader culture within each department and university. This perspective proves invaluable on various levels, emphasizing the necessity for a shared culture of values and collaborative relationships among all stakeholders in a learning community. The evolution of universities into learning communities, where effective pedagogical practices are not only cultivated but also shared, necessitates processes that support learning while enhancing the quality of teaching. Such a transformation requires leadership that champions innovation and collaboration, striking a balance between those more receptive to change and those who are less so (OECD, 2012).

Basic principles for assessment as learning and the quality assurance of teaching in Higher Education (adapted from OECD, 2012)
1. The quality of teaching abides to wider evaluation procedures for the accreditation of the university.
2. The evaluation of teaching quality is approached differently than the assessment of various measures taken to support overall quality improvement.
3. It is evident how the various internal and external evaluation processes contribute to the enhancement of teaching and learning.
4. Evaluation is integrated into every process of quality improvement and teaching endeavor
5. Various evaluation tools are available for assessing teaching effectiveness.
6. Evaluation results are analyzed and presented in a manner that contributes to the improvement of teaching and learning.
7. Support is provided to help teachers and students make use of the evaluation results.
8. Evaluation serves as a tool to support reflection and ongoing dialogue about how teaching and learning can be enhanced.
9. Continuous evaluation ensures that the results of this dialogue and subsequent proposals are actively utilized.
10. Coordination among different stakeholders in a university regarding the evaluation process ensures that its results are integrated at the institutional level.

It becomes apparent from the above that the evaluation of teaching fosters a continuous dialogue among all stakeholders involved in the teaching/learning process, aiming for continuous progress. Through this, a positive outlook for the future and a commitment towards positive change are cultivated.

Let's explore how and why the evaluation of teaching can be an educational innovation and how it can influence the way we think and act in relation to course evaluation and assessment as learning.

Understanding what assessment for learning is

Assessment as learning (AaL) is a student-centered approach to education linked to the empowerment, emancipation and sustainable development of those involved in the educational process and the agencies that support this process (Rodríguez-Gómez & Ibarra-Sáiz, 2015). In relation to the evaluation of learning outcomes, it can be defined as a collective process which forms the basis for development, knowledge creation and the formation of students' identity.

Consider student assessments conducted at the end of the semester, where the results are reflected in the final grade. The grade serves as a certification of a student's success or failure in passing the course. However, what does this grade truly reveal about the actual achievements concerning the expected learning outcomes of the course? Moreover, what insights does it provide into the learning process of the students and, crucially, the quality of teaching? This practice aligns with a course evaluation approach (CEA) occurring at the conclusion of a learning cycle, such as a course or a learning unit. Unfortunately, such an approach does little to assist students in improvement or help teachers gauge the effectiveness of their teaching and the depth of student understanding.

In contrast, AaL (Assessment as Learning) advocates for a student-centered approach that incorporates strategies and practices fostering skills supporting self-awareness of learning needs, self-regulation throughout the learning process, autonomous learning in a lifelong perspective, and informed decision-making. It addresses three key challenges (see Figure 2): (a) student involvement, (b) feedforward, and (c) high-quality assessment tasks.
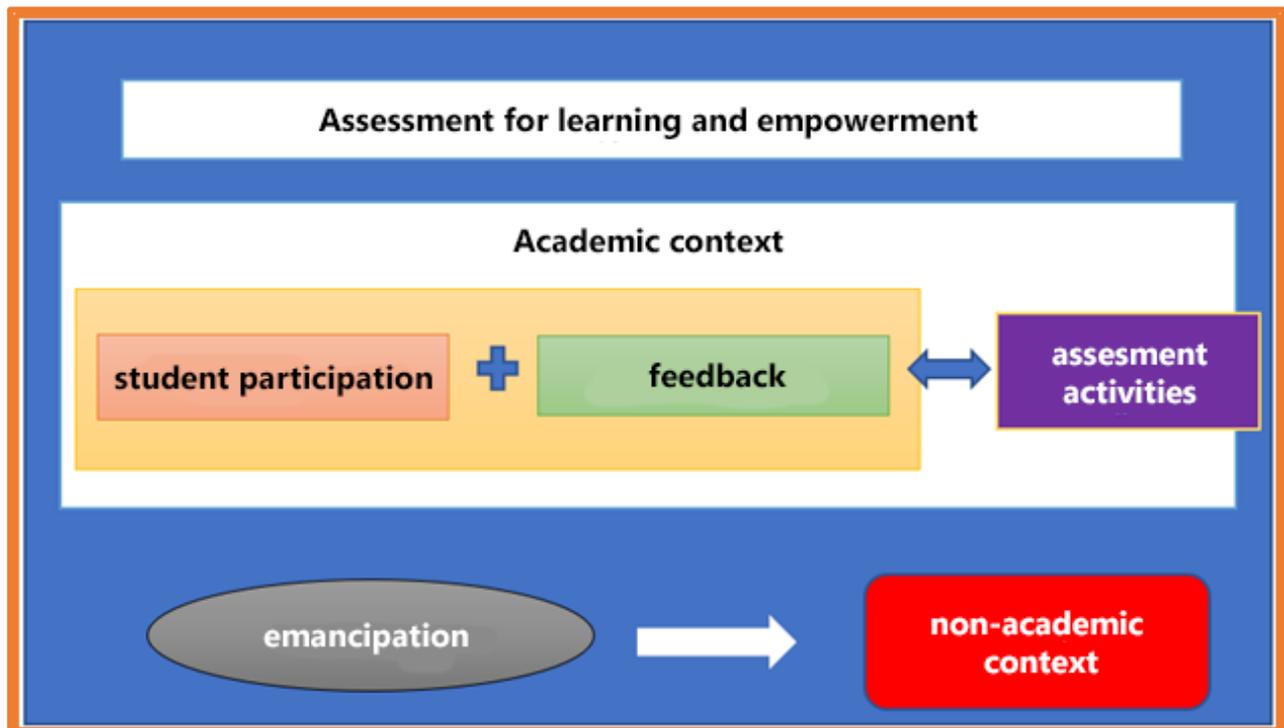

Figure 2. Challenges of learning assessment in higher education (adapted from Rodríguez-Gómez & Ibarra-Sáiz, 2015)

Students are anticipated to engage actively in assessment, particularly through self-assessment and peer assessment procedures, fostering transparency and encouraging dialogue. This approach incorporates strategies and feedback comments that offer insights into assessment results, aiming to enhance the learning process. To achieve this, the designed learning activities are both challenging and meaningful, serving as an authentic and integral part of the learning process.

In these activities, students engage in reflective and analytical reasoning. Assessment as learning facilitates the development of transversal skills, including data analysis, application of knowledge, communication, collaboration, problem-solving, decision-making, and creativity. These skills are transferable to extra-academic contexts, both personally and professionally.

A. Βασικά στοιχεία της ΑγΜ: είναι συνεχής και έχει αυθεντικό χαρακτήρα

What we (should) know

Continuous AaL
It employs various types of assessment based on complementary dynamics to support the learning and teaching process. This approach is applied across all phases and throughout a range of identified learning experiences, including course level, year of study, and curriculum:

Initial assessment
- ➢ Frequently conducted at the start of a learning process (at the beginning of a lesson, unit of study, etc.), this type of assessment aims to evaluate the skills, abilities, interests, experiences, levels of achievement, or difficulties of individual students or an entire class.
- ➢ Includes formal measurements used to establish a starting point or baseline and/or informal measurements (e.g. observation, discussions, questions).
- ➢ Updates planning, learning and teaching methods used, as well as assessment options.

Diagnostic assessment
- ➢ It aims to identify students encountering difficulties in the learning process.
- ➢ It aims at providing personalized support, mobilization, and integration for students.
- ➢ It is based on formative assessment and may use formal and informal forms of assessment.

Formative assessment
- ➢ It occurs throughout the duration of the course.
- ➢ The primary objective of this assessment type is to offer immediate and meaningful feedback to students regarding their progress.
- ➢ It enables students to reflect on potential mistakes and areas for improvement.
- ➢ It is important to provide students with formative feedback throughout the lesson so as to give them these opportunities.

Final student assessment
- ➢ It is conducted at the conclusion of a course or a learning unit.

- This form of assessment is employed to make decisions and formally measure students' performance against learning outcomes.
- It can also be utilized to assess the effectiveness of teaching at the program/course/module level.
- while providing students with timely and meaningful feedback remains important in final assessment, it may not necessarily contribute to their improvement.

Authentic assessment

Ashford-Rowe and colleagues (2014) identify eight key elements related to authentic assessment, emphasizing the socio-pedagogical features of the educational experience in higher education:

(1) An authentic assessment should be challenging, establishing connections between real-world experiences and academic ideas and knowledge.

(2) The outcome of an authentic assessment should manifest as a relevant performance or product in the professional context of the subject matter and society at large. There should be a balance between demonstrating specific skills and knowledge and producing an outcome with added value for students and their future careers.

(3) Authentic assessment design should facilitate the transfer of knowledge to new situations, supporting the idea that skills and knowledge acquired in one domain can be applied in another, often unrelated, domain. This prompts teachers to consider the relationship between teaching-promoted knowledge, skills, attitudes, and their application in the workplace, guiding curriculum revisions accordingly.

(4) Metacognition is a crucial component of authentic assessment, emphasizing the value of critical reflection and self-assessment for student progress and performance in academia, the workplace, and personal and social development.

(5) Ensuring accuracy in assessment performance is vital, reflecting both the competence needed to achieve the learning outcome and the real-life application of developed knowledge, skills, and attitudes at professional and personal levels.

(6) The assessment environment and tools used are important considerations. Checking the 'fidelity' of the assessment environment and appropriateness of tools for that environment is crucial. Recreating a "real-world" environment in an educational setting may require simulation, and the extent of it needs to be determined.

(7) Designing feedback discussion and providing feedback are essential aspects. The ability to discuss, give, and receive feedback is critical for workplace performance and should be integrated into authentic assessment activities. Feedback's value as guidance and a means of identifying areas for improvement is vital for enhancing student learning and performance, while also providing teachers with valuable insights for course and teaching improvement.

(8) Collaboration is of significant value, considering its essential role in most work environments. Incorporating opportunities for collaboration into assessment activities helps students understand its importance, emphasizing the integral role of collaboration in seeking external sources for critical data and overall business performance.

The AaL approach, positioning assessment at the core of the learning process, necessitates a reevaluation of traditional theoretical models for effective teaching and learning. Drawing inspiration from Ryan and Ryan's (2013) TARL (Teaching and Assessing Reflective Learning) model, we propose a theoretical framework (refer to Figure 3) that integrates the revised version of Bloom's taxonomy (Anderson & Krathwohl, 2001) for learning objectives and the evaluative reflective process (Bain et al., 2002). This framework considers developmental and other parameters within the pedagogical framework of higher education, aiming to emphasize the philosophy of AaL. It brings forth basic parameters and strategies that arise from the philosophy of AgM.

- **Understanding the pedagogical context** involves visualizing it as a two-dimensional space that underscores the intricacy of pedagogical decisions. The vertical axis represents the levels of learning objectives, targeting higher-order thinking or the application of ideas. Meanwhile, the horizontal axis emphasizes the developmental dimension of learning, mapping students' thinking over time as they advance through the curriculum. This progression involves increased exposure to concepts and practices within the scientific field or subject matter.
- **Formulating learning outcomes involves incorporating integrated assessment processes and connections to the practical application of knowledge, in addition to cognitive and reflective abilities.** The application of assessment and reflective practices may pertain to each level of the learning outcomes, as well as a set of acquired abilities that align with the issues stemming from the developmental dimension of the pedagogical framework and the objectives of the assessment.
- **Assessment and reflective practices consider the developmental dimension and engage all stakeholders in the field.** The goal is to progressively immerse students in the culture of academic and professional learning.
- **The development of reflection over time incorporates assessment processes in different contexts to reflect upon in relation to professional expertise**.

Learning outcome

cognitive objectives

- create
- assess
- analyse
- implement
- understand
- remember

self-reflection

- reconstruct
- justify
- seek & highlight correlations
- report

Educational framework

Learning objectives

Developmental objectives

basic skills	theoretical knowledge skill developent	practical implementation
self society	self peers society	self peers colleagues clients / beneficiaries

simulation — reality

course/curriculum level

Assessment and reflection level

experience level

Figure 3. Educational assessment framework for reflective learning in Higher Education

On this basis, teachers can reflect on the different dimensions of the context and needs of their courses and develop evaluative and reflective practices that engage students in the gradual appropriation of the tools for academic, professional and personal development.

What we (should) do

Steps in assessment as learning

With the knowledge outlined above, we can formulate strategies and practices that transform assessment into a learning tool, enhancing the quality and effectiveness of our teaching. The design of an assessment involves a series of steps:

- ✓ **We establish** assessment goals based on its purpose, success criteria, and grading standards.
- ✓ **We select** the appropriate assessment process or activity according to its purpose and the expected learning outcomes.
- ✓ **We communicate** the assessment strategy to students, explaining how they can benefit from it.
- ✓ **We provide** feedback that fosters the learning process.
- ✓ **We engage** students to promote increased autonomy and control over their learning through **self-assessment**.
- ✓ **We encourage** student involvement to support the learning of their peers through **peer assessment**.
- ✓ **We reflect on** the results of the assessment.
- ✓ **We reconsider** teaching or even assessment itself with the goal of enhancing the quality and effectiveness of the educational process.

Assessment procedures based on cognitive objectives

In alignment with cognitive objectives and drawing from Bloom's taxonomy (Anderson & Krathwohl, 2001), we compile a list of indicative assessment activities tailored to the characteristics and objectives of our specific course (Eberly Center for Teaching Excellence & Educational Innovation):

Remember:	Objective tests such as fill-in-the-blank, matching, marking, or multiple-choice questions that require students to: recall information or recognize terms, facts and concepts Example: assignments, problem-solving exercises, class discussions, or concept maps that require students to summarize something they have studies, read or heard.
Understand:	Examples include • compare and contrast two or more theories, facts or processes • classify or categorize cases, elements or events using specific criteria • paraphrase, render in their own way documents or speeches • devise or identify examples or illustrations of a concept or principle
Apply:	Examples include problem solving, project prototyping or simulations that • use procedures to solve a complex problem or complete unknown tasks • determine which processes are most appropriate for a given task
Analyze:	Examples include case studies, project analysis, discussions, or concept maps that require students to: • distinguish or between different elements or choose the same • determine how different elements work together • identify intentions, biases, values in the materials presented to them

Evaluate:	Examples include diaries, problem-solving reviews, product reviews or study reviews that require students to test, observe, and reflect in relation to specific criteria or standards
Create:	Examples include research projects, musical compositions, performances, essays, business plans, creation of websites, etc., which require students to produce, construct, design or create something new

Next, we report assessment methods and techniques, presenting advantages but also challenges, as documented in relevant research (Almond, 2009; Gleaves et al., 2007; Orr, 2010; Orsmond & Merry, 2013; Turner et al., 2013):

➤ **reports or opinion texts**: The development of opinion texts and reports in relation to concepts or processes of the course, throughout the semester, can lead to deeper learning and better learning outcomes compared to just having final exams,

➤ **diaries**: Student diaries are very useful in group work and as an additional assessment technique that enhances individual contribution. At the same time, they allow the teacher to delve into the personal and collective work of the students. Pen-and-paper diaries collect fewer reports but are more comprehensive and detailed than reports in digital diaries. Both methods are considered acceptable and appropriate. A useful tool is "padlet" in which students write their post which are visible at any time by the teacher and also by their fellow students if this is agreed upon,

➤ **student portfolio**: It accompanies the student throughout their studies and allows teachers to have an overall picture of the student progress and their engagement with the curriculum. It is a complex and interactive process. It requires students to produce a large amount of evidence and reflect on the learning process and outcomes. Students are invited to choose from projects that show their progress, with documentation added. In this way, own understanding that students develop about their learning becomes visible. There are differences in this method in terms of grading criteria between different teachers as well as differences depending on the subject matter. This method often needs to be supported with other assessment methods to strengthen the students' skills. Students appreciate that it is a fair and useful process, but point out that it takes a lot of time and commitment,

➤ **collection of files**: Refers to the collection of files that include student answers to questions posed in the courses or in the laboratories, which are submitted for assessment multiple times during the semester. The answers to the questions are graded and feedback comments are made by the students themselves. It is a particularly popular technique for strengthening self- and peer-assessment skills. Students learn more in relation to the objectives of the course,

➤ **teamwork**: It has significant benefits for the learning process adopted and in terms of student preparation for life after university. Teachers should take into account the dynamics of the student group and discuss what "fair assessment" means, since within a group there may be different views on the issue. A sufficient number of team members is 4-5 people. Group selection

can be done among students, for example using the wiki tool or groups in the e-class. The benefits are also significant in the case of randomly formed groups. These must be done in a way that the randomness is controlled by the students. It can be done through random assignment of students (e.g. to breakout rooms on some modern distance education platform) depending on the number of students. The assignment should include a common part and an individual part, with clear instructions on the percentage of contribution of each to the overall grade,

- **group final assessment**: The final assessment in a small group promotes student motivation compared to the final exam assessed individually. Oral examinations is linked to students' professional identity,
- **assessment rubric**: The rubric is an innovative educational tool for assessing mastery/proficiency, using specific criteria and a rating scale. It requires the identification of dimensions that constitute competence and can be evaluated with qualitative or quantitative criteria to determine the level of competence on the specific issue that the assessment focuses on. The rubric is common for all students, ensuring that each dimension and success criterion is treated in the same way by all, reducing the scope for arbitrariness, inconsistency or subjectivity that other assessment methods and techniques have.
- It is important that the rubric includes a field for comments and suggestions for improvement, so that it is linked to goals for continuous improvement and it helps to strategically organize teaching and learning. It is a great tool in group work and presentations that help the team to self-assess and peer-assess with clear and common criteria. It can also be used by teachers for the grading criteria of student assignments, for example. Indicatively, Table 1 presents assessment criteria developed in relation to basic dimensions concerning the development of student work (it is about annotated bibliography). This specific rubric describes for each dimension indicative behaviors that describe the gradation of the quality criteria. This rubric is analyzed so that the students become familiar with the criteria and adjust their work on that basis.
- A rubric template is used to record the score for each criterion and comments related to each assignment. In relation to the suggestions for improvement, they may be noted both by the teachers and by the students. A good practice is peer assessment between students based on the rubric.

Criteria	Quality identification				
Dimensions	A	B	Γ	Δ	Suggestions
Research topic, questions and relevance (3 credits)	The paper provides a clear, focused description of the research topic and questions and discusses the relevance of its topic to education.	The paper states the topic and lists the questions. The discussion of relevance is very broad but appropriate.	Little appropriate information is given about the topic, questions or relevance.	Information on the topic, research questions and relevance is very vague, unclear or incomplete.	
References (4 units)	The paper provides full bibliographic information in APA style for five relevant articles from authoritative journals.	The paper provides complete bibliographic information for five relevant journal articles, but some or all of the references are in incorrect format.	The paper provides incomplete or incorrect bibliographic information for five journal publications, one of which is inappropriate.	The paper provides bibliographic information on less than five relevant journal publications.	
Comments (7 credits)	In one page or less, explain the choice of articles, summarise the main topics and explain how the paper addresses your research questions.	The comments summarise each paper, but do not identify the selection and/or make clear links to the research questions.	The comments are either repetitions of the content of the article, unclear, incomplete or off-topic.	The comments are indicative of the content.	
Link to practice (7 credits)	Each comment notes practical implications for teaching that follow logically from each article.	These are some practical consequences, but more should have been listed. One or two points may not follow logically from the articles.	The instructional implications are limited, unclear, indirectly related and/or in conflict with the literature.	Little precise information is provided on teaching practices	
Conventions (4 credits)	The paper has page numbers, is double spaced, and well organized. Its ideas are clearly articulated and carefully stated. There are no problems with the technical writing.	Some issues with organization, clarity or conventions should have been corrected, but they are not serious enough to distract the reader.	Many mistakes that are distracting but do not interfere with the meaning.	Frequent problems make the text unintelligible. Possible plagiarism risks appearing as deception.	

Table 3. Example of an assessment rubric from an undergraduate course on educational psychology (taken from Reddy & Andrade, 2010)

Appropriate feedback

In order for assessment to serve learning and invest in improvement and change, a key condition is the provision of appropriate feedback. Here are key elements that should be kept in mind for feedback to be appropriate (Gibbs & Simpson, 2005):

- It is sufficient, i.e. it meets the assessment criteria and is provided frequently and in sufficient detail,
- it focuses on the performance and effort of the students and not on the students themselves
- it is provided in a timely manner while it is still important for students so that students will pay attention to advance their learning further or receive further support
- it communicates information clearly to students so they understand where they stand in relation to expected learning outcomes and success criteria
- it ensures that students know how to make use of feedback comments (check question: how will this be improved?)

Why it is important

Research, internationally, shows that assessment is cited as one of the least satisfying aspects of students' experience regarding their university studies (Carless et al., 2017). Student concerns include issues of sense of entitlement from grading, lack of clarity about what they are expected to achieve, disappointment if grades do not meet their expectations, emotional challenges such as pressure, stress and discouraging experiences, particularly in relation to feedback processes and how timely and useful they are. On the other hand, it is argued that the best thing teachers do for students is to assess their learning outcomes (Ellington, 2000; Race, 1995); and that one of the best ways to improve student learning is to improve the assessment method (Brown et al., 1997; Greer, 2001).

The importance of assessment for learning and the application of alternative assessment methods also emerges from students' own experiences reported in the literature (indicative: Bevitt, 2015; Carless & Zhou, 2015; Flint & Johnson, 2011; Frisby et al., 2014):

Presentation of criteria and exemplars: Students reported that they particularly appreciated the presentation of exemplars that could help them understand what teachers were looking for in terms of assessing a particular piece of work. The students felt that this was especially necessary in relation to tasks or exercises they were dealing with for the first time. These unfamiliar forms of assignments/exercises create anxiety as students are not sure how they can get a high grade and exemplars can alleviate some of these concerns.

Combination of assignment and final exam: Students mentioned as a very positive course element the possibility to choose an assignment to cover a percentage of the course grade. For example, students who were less confident about their exam performance could reduce the exam weighting from 60% to 40% by doing alternative assignments, such as a research essay. The idea of choice that allows students to diversify risk was particularly appealing to them.

3. Assessment for learning and quality issues in a socio-educational context

Assessment of student participation: There was an atmosphere in the course in which participation assessment was implemented, which was quite different from that in other university courses. There was a kind of 'productive tension', feeling that something interesting or challenging might happen and that the participants should be well prepared. The teacher can at any time ask a question to someone and can also elaborate on the resulting answer. Accordingly, students reported that they were more focused and better prepared in this course as opposed to other courses. This challenging atmosphere was also balanced by warmth, empathy and trust between the participants. The degree to which participation was valued was one of the factors that students reported encouraged them to maintain their own concentration and express their thoughts. However, they expressed the view that they participated because they wanted to and had something to say, not just to earn grading points.

Mid-term assignment feedback: The teacher asks for a draft of the assignment which would receive 10% of the mark. Feedback is given allowing time for revisions of the final assignment which would receive an additional 30%. The students evaluated very positively this possibility to receive interim feedback and improve their work.

Flexibility in the choice of assessment tasks: Students had different choices both in relation to the tasks and how they could be approached. For their individual project, they could choose from a long list of possible topics or even suggest a topic of their own. Students could produce conventional written assignments or more innovative project formats, such as videos or podcasts. A recurring issue they reported as positive was "flexibility," which they felt offered the opportunity to work on something that was personally meaningful to them and also provided them with opportunities to perform better or avoid tasks with unfamiliar topics. Choice also facilitates student autonomy, which many students reported as very important.

Assessment related to applications and situations in the field: Law students commented positively on assignments related to how Law is applied in everyday life. These tasks included: (a) a media reflection journal, dealing with legal cases reported in the media, (b) an evaluation report on the visit that each student undertakes to organize on his/her own to the court. That included peer assessment of student reports using a rubric given by the teacher.

Reflect on your teaching practices

Questions for critical reflection in relation to assessment (Bound, 1995):

Focus and interpretation of assessment

- Are assessment tasks oriented towards the world external to the course, ie. not simply self – referential?
- How are they related to the central outcomes desired as part of education for a given discipline, field or profession;

- Are assessment tasks interpreted by students in the ways assumed by staff, ie. do both parties have the same perceptions about the capabilities to be exercised and ideas and concepts to be engaged;

Contribution of assessment to overall learning goals

- In assessment tasks, are learners commonly required to engage in the whole of a process or only in fragments (e.g. problem-formulation as well as problem-solving);
- Is as much emphasis to be given to the strategy and process of what is required as to the specific result?
- Can each separate act of assessment in itself be credibly regarded as a worthwhile contribution to learning?
- Does the set of assessment activities across all subjects adequately reflect what is most relevant to the course?

Assessment consequences

- What are the real consequences of each assessment activity for the students, the course, the curriculum?
- In particular, does assessment act to promote quality learning throughout the course (e.g. deep/meaningful approaches to study) and discourage undesirable learning practices (short-term memorization for tests)?

Contribution of assessment to the development of lifelong learning

- Does the range of assessment activities promote students' abilities to self-assess in the context of their studies and later in their professional life?
- Is the development of student autonomy encouraged through an overall assessment strategy in the course?
- Are students able to take advantage of sufficient opportunities to design assessment activities, taking into account the requirements (including assessment criteria) to meet their own needs and interests?

Appropriate language and evaluation assumptions

- Do you avoid "judgmental language" in evaluation statements?
- Are achievements highlighted and abstract critical vocabulary avoided?
- Do assessment activities avoid making assumptions about the subject or learner that are irrelevant to the task and that are perceived differently by different groups of students (e.g. use of redundant gender-specific examples, assumptions about characteristics, etc.)?

Portrayal of accomplishments

- Does the evaluation fairly reflect a student's accomplishments?

- Are the accomplishments sufficiently embedded in context for readers to draw meaningful, logical and useful conclusions from them?

Monitoring assessment and promoting good practices

- Does work related to assessment promote the productive use of time for all involved (e.g. students and teachers)?
- Are there guidelines or assessment policies that have been agreed upon by all parties involved in the assessment process?
- Are assessment practices and their results used to revise procedures?

Useful articles

Multiple choice questions	Shank, P., & American Society for Training Development. (2010). *Create Better Multiple-choice Questions*. Alexandria VA: American Society for Training & Development.
Concept maps	Watson, M. K., Pelkey, J., Noyes, C. R., & Rodgers, M. O. (2016). Assessing conceptual knowledge using three concept map scoring methods. *Journal of Engineering Education, 105*(1), 118-146. doi: 10.1002/jee.20111
Peer tutoring Quiz	Stigmar, M. (2016). Peer-to-peer teaching in higher education: A critical literature review. *Mentoring & Tutoring: Partnership in Learning, 24* (2), 124-136. doi: 10.1080/13611267.2016.1178963 Reiner, C. M., Bothell, T. W., & Sudweeks, R. R. (2003). *Preparing effective essay questions: A self-directed workbook for educators*. New Forums Press.
Assignment	Johnston, L., & Miles, L. (2004). Assessing contributions to group assignments. *Assessment & Evaluation in Higher Education, 29*(6), 751-768, doi:10.1080/0260293042000227272

Case studies **Debates** **Student presentations** **Reflective diaries/journals**	De Grez, L., Valcke, M., & Roozen, I. (2014). The differential impact of observational learning and practice-based learning on the development of oral presentation skills in higher education. *Higher Education Research & Development, 33*(2), 256-271. doi: 10.1080/07294360.2013.832155 Pepper, M., & Pathak, S. (2008). Classroom Contribution: What Do Students Perceive as Fair Assessment? *Journal of Education for Business, 83* (6), 360-368. doi: 10.3200/joeb.83.6.360-368
Self-assessment **Peer review/peer assessment**	Varner, D., & Peck, S. R. (2003). Learning from learning journals: The benefits and challenges of using learning journal assignments. *Journal of Management Education, 27* (1), 52-71. doi: 10.1177/1052562902239248 Kearney, S. P. (2013). Improving engagement: the use of 'Authentic self- and peer-assessment for learning' to enhance the student learning experience. *Assessment & Evaluation in Higher Education, 38*(7), 875-891. doi: 10.1080/02602938.2012.751963
Project work	Iwamoto, D. H., Hargis, J. & Vuong, K. (2016). The effect of project-based learning on student performance: An action research study. *International Journal for Scholarship of Technology Enhanced Learning, 1* (1), 24-42.

Useful online resources

Center for Engaged Learning. (2015, January 14). Ashley Finley on the future of assessment in higher education. Retrieved from https://youtu.be/6mysEnar8zI

Center for Engaged Learning. (2015, January 14). Ashley Finley on role of students in assessments. Retrieved from https://www.youtube.com/watch?v=8eaC5....

Technology in Educational Testing and Assessment: https://www.youtube.com/watch?v=nsPbxfJTtxk

Transforming the assessment and feedback landscape: students as partners https://www.jisc.ac.uk/guides/transforming-assessment-and-feedback/assessment-literacies

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Gleaves, A., Walker, C., G., & Grey, J. K. (2007). Using digital and paper diaries for assessment and learning purposes in Higher Education: A case of critical reflection or constrained

compliance? *Assessment & Evaluation in Higher Education, 33*(3), 219–231. doi: 10.1080/02602930701292761

Greer, L. (2001). Does changing the method of assessment of a module improve the performance of a student? *Assessment & Evaluation in Higher Education, 26*(2), 127-13. doi: 10.1080/02602930020018962

OECD (2012). *Fostering Quality Teaching in Higher Education: Policies and Practices. An IMHE Guide for Higher Education Institutions.* IMHE Institutional Management in Higher Education.

Orr, S. (2010). Collaborating or fighting for the marks? Students' experiences of group work assessment in the creative arts. *Assessment & Evaluation in Higher Education, 35*(3), 301–313. doi: 10.1080/02602931003632357

Orsmond, P., & Merry, S. P. (2013). The importance of self-assessment in students' use of tutors' feedback: A qualitative study of high and non-high achieving biology undergraduates. *Assessment & Evaluation in Higher Education, 38*(6), 737–753. doi: 10.1080/02602938.2012.697868

Race, P. (1995). What has assessment done for us and to us? In P. Knight, *Assessment for learning in Higher Education* (pp. 61-74). Kogan

Reddy, Y. M., & Andrade, H. (2010). A review of rubric use in higher education. *Assessment & Evaluation in Higher Education, 35*(4), 435-448. doi: 10.1080/02602930902862859

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4. EQUITY AND INCLUSION

Zoe Gavriilidou

One of the key principles of Student-centered Learning is equity and inclusion. Educational institutions are required to encourage and facilitate student accessibility and participation by providing flexible forms of learning and attractive education and training environments in cooperation with employment agencies, in order to ensure equal opportunities and fair access for all. Indeed, in order to ensure the role of the university as a key vehicle for social mobility, it is important to understand the challenges and opportunities to promote equal access and inclusion in Greek HEIs.

Understanding what equal access and inclusion (in higher education) means

➤ Equity and inclusion are two important values adopted by institutions that wish to be supportive towards groups of people who belong to different races, ethnicities or religions, have different abilities, gender or sexual orientation.

➤ More specifically, equity refers to the fair treatment of all, so that policies and practices in HEIs ensure that one's identity does not determine/limit a priori the opportunities or outcome of the learning process. Equity differs from equality which argues that all people should be treated equally, as it differentiates the treatment of each person according to their needs so that the end result is equality.

➤ Inclusion refers to the way in which HEIs respond to the needs of different groups of the student population in a way that enables them to participate in all learning processes.

What we (should) know about equity and inclusion

An environment is inclusive when the student population can:

o freely express their identity, opinions and ideas,
o participate in every learning activity inside and outside the classroom, at group level or individually,
o feel safe and is not afraid of receiving threats, harassment or unfounded criticism,
o feel respected and recognized by the teaching staff and fellow students.

What we can do in (and out of) the classroom

- o We use inclusive language,
- o we use the pronouns preferred by the students,
- o we avoid sexist or politically incorrect terms,
- o we adopt inclusive behavior in the classroom,
- o we adopt the idea that mistakes are not indicators of failure but opportunities for learning,
- o we include in the syllabus the 'Accessibility and Inclusion Statement' to every lesson.

⮑ In our educational materials we pay attention to points such as:
- o each photo should include a description,
- o each video has subtitles and their transcripts are available,
- o interactive content is accessed through keyboard shortcuts and not with the mouse,
- o avoid using color to emphasize meaning, to help people with color blindness or color blindness. The use of italics or bold characters should be preferred,
- o prefer a high contrast between the background and the text,
- o PowerPoint presentation files with clarity are preferred,
- o ensure that pdf files are accessible to screen readers.

Why is equity and inclusion important?

When educators embrace a positive perspective on equity and inclusion, they:

- ➤ Organize the classroom environment to optimize learning for all participants in the educational process,
- ➤ Incorporate flexible options and accommodations to address the diverse needs and levels of everyone engaged in the learning process,
- ➤ Offer learning opportunities that leverage various stimuli, such as work-based experiential learning and differentiated teaching strategies, etc.)

Reflect on your teaching practices

What different backgrounds do my students come from and what learning paths have they followed?

- o What implicit assumptions and stereotypes do I hold about my students?
- o How can I actively revise and challenge these assumptions?
- o Which instructional practices or strategies contribute to a more effective learning experience for my students?
- o What forms of support or compensation do I offer my students to address their individual needs?
- o In what areas do my students excel, and where do they face challenges that may require additional attention or support?

4. Equity and inclusion

Useful material

You can improve your knowledge by reading the following:

Ζωή Γαβριηλίδου (Επιμ.), 2022, [Οδηγός για την ισότιμη πρόσβαση και συμπερίληψη στα ελληνικά ΑΕΙ](#)

Six videos entitled "[Equal Access and Inclusion](#)" created by the Quality Assurance Unit of the Democritus University of Thrace in collaboration with the Teaching and Learning Support Centre of DUTH.

The University of Arizona, [Diversity and Inclusiveness in the Classroom](#).

5. TEACHING EMERGING ADULTS / SOFT SKILLS

Katerina Kedrakas

Understanding soft skills

Skills are an integral part of an individual's assets in personal, educational, professional and social life, describing an individual's ability to apply the knowledge they have acquired, but also to be able to use their expertise to complete tasks and solve problems.

The term 'skill', used extensively in fields as diverse as education/training, the labour market, psychology and the social sciences, carries a multitude of meanings, objectives and conceptual interpretations. In order to understand the nature of skill, it is necessary to provide basic definitions, to distinguish it effectively from related concepts, in particular 'knowledge' and 'abilities', and to highlight its evolution through the significant historical applications it has experienced.

Definitions and distinctions of the concept of competence

In the context of the European Qualifications Framework (EQF), skills are described as cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments).

> **Skills:** *a combination of knowledge and experience required to achieve a specific physical or mental task or to carry out a specific job.* (Hellenic National Qualification Framework)
>
> **Skill:** *The ability to apply knowledge and using know-how to complete tasks and solve problems* (Cedefop, 2014)

To distinguish the concept of skill from the concepts of knowledge and competence we propose the following definitions (Λιντζέρης & Κεδράκα, 2022):

> *Knowledge*: the outcome of assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices related to a field of study or work. (Cedefop, 2014).
>
> *Competence*[1]: the ability to apply learning outcomes adequately in a defined context (education, work, personal or professional development) or the ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development (Cedefop, 2014).

It should be noted that the modern, expanded and inclusive use of the concept of skill is often not clearly distinguished from the concept of competence. In essence, the term "skill" incorporates all those characteristics necessary for the individual to survive, adapt, facilitate, manage one's life and realize the goals that the individual has set in his personal, social and professional life (Κεδράκα, 2003).

However, how skills are measured is often debatable. What dimensions should be considered and at what level: Individual or collective? For what purpose? How, by whom and for whom can their importance, scope, value be assessed? How is the interconnection of a skill with other skills achieved? Through related knowledge and/or attitudes?

Skills in an educational context

Skills can be acquired mainly through education / training, then through work experience - and less through specific training or retraining of workers. The dimension of acquiring skills through informal learning, i.e. everyday personal and professional activity, is probably underestimated. More often, skills are treated as a qualification, which is acquired, determined, developed, valued and given meaning in the respective context of educational-, work- and social structures and practices (Lindzeris, 2020).

At the level of education policies, the last thirty years can be described by the four pillars of education described by the Report of the International Commission on Education towards the 21st Century "Learning: The treasure within" (UNESCO, 1999), namely:

Learning to know

Leartning to do

Learning to live with others

Learning to be
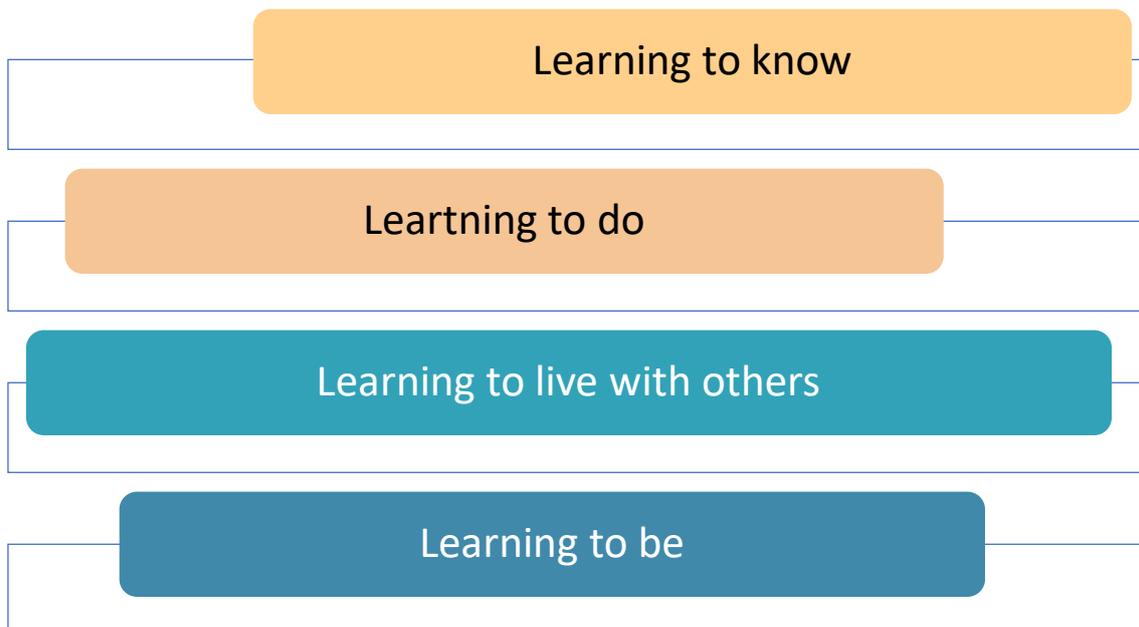
Skills in an educational context are developed through systematic effort and practice through teaching methodologies and educational activities, taking into account that the development of skills requires the active involvement of students in appropriate educational processes. The big wave of the covid-19 pandemic brought to the fore major issues about what needs to change in universities. The aim cannot be to abolish the academic and research character of universities, nor to turn them into institutions providing exclusively distance education. Universities need to incorporate student-centred learning models based on modern educational methodologies that provide knowledge and cultivate skills - as well as attitudes and behaviours, focusing on skills that should be prioritised in a new higher education framework.

➲ Skill categorizations/ typologies

The growing preoccupation with skills has led many institutions and individual researchers to propose skills typologies, i.e. groupings of individual skills. In addition, typologies attempt to represent the multidimensional nature of skills. The typical composition of a skills typology usually includes at least three main sections (Κεδράκα & Λιντζέρης, 2022):

➤ *Fundamental or basic skills* (these are the skills of initial education and training, which form the basis for further development and specialization during life)

➤ *Special professional skills,* which refer to technical and practical skills in relation to a specific subject, profession, specialization, and so on.

➤ *General skills* (or "soft", interpersonal, transversal, social emotional, "life skills"). These include skills such as critical thinking, adaptability, the ability to continuously learn, collaboration, ability to communicate effectively, negotiation and leadership skills, etc. Also, some personal "qualities", such as sociability, empathy, reliability, self-confidence, creativity, are referred to as general skills.

Soft skills

Soft skills may be treated as an individual characteristic: Skills are individual characteristics that drive at least one dimension of individual well-being and socio-economic progress " (OECD, 2015: 34). In policy documents, they are often seen more as a professional qualification. There is an increase in the number of skills required for a profession, which reflects the changes in the context of recruitment in the labor market (Cedefop, 2019, 2020; European Commission, 2016; OECD, 2016). Thus, in order to cope with the high demands of the modern work environment, the modern employee/worker needs to develop a set of complex skills, depending on the profession / professional sector that the individual is interested in entering (Kedraka, 2010).

A central element of the ongoing debate on skills is **the emphasis on soft skills** (e.g. social-emotional). It is interesting, however, that references to soft skills (which are initially cultivated through family life, school life and the social and cultural environment in which the person lives) overlook their developmental dimension, as well as their importance for the whole human life. However, the smooth development of soft skills is a critical factor that can enable a young person to pursue a functional life - and not merely to effectively perform a task or practice a profession (Λιντζέρης & Κεδράκα, 2022).

Soft skills are important for the smooth interaction between the individual and their social environment. These skills help the individual in their effort to successfully coexist with others and adapt to their social environment. These skills determine people's relationships in their social and professional life. They aim at:

α. the adaptation of the individual to the demands of their environment,
β. creating constructive interpersonal and social relationships,
γ. They aim at understanding the roles, rights and obligations of all members of a society, with a view to a smooth social coexistence and adaptation,
δ. shaping the individual's opinion and attitude towards various current psycho-social, professional, cultural, economic, etc., events in life and the society in which he or she is called to live (OECD, 2015).

In conclusion

By "soft skill" we refer to the degree of ease, accuracy and speed with which we perform a series of complex physical actions/tasks or mental processes to solve problems and cope with situations that we have to face. We also mean the degree of ease and speed with which we (re)adjust our movements as well as our way(s) of thinking when it comes to handling various problems and situations, while the conditions or our data change

What we(should) know

Attending university involves goals at many levels and the focus of higher education is by definition academically oriented. Higher education institutions, by virtue of their role, are required to equip their graduates with specific knowledge and skills, always linked to the scientific field they serve. The aim of teaching is therefore to acquire and enrich students' knowledge, to improve their technical and professional skills and to bring about changes in their attitudes or behaviour with a view to their personal development and participation in social, economic and cultural development.

In Greece, a dialogue has recently started on the need to emphasize the development of critical and transformative learning skills and digital literacy through the establishment and operation of teaching and learning support structures in HEIs (see Network of Centres for Teaching and Learning/CTL), highlighting the importance of using modern methods and techniques of education that develop critical thinking and critical reflection. (Καραδημητρίου κ.ά., 2020; Κεδράκα, 2016, 2020). However, the purpose of university education is broader and should include, in addition to academic orientation, the development of personal and professional skills in the fields of personal development, health, work-life balance, entrepreneurship, citizenship and professionalism, which are often neglected (Λιντζέρης, 2020). Students need to develop their cognitive and academic potential, not only in professional and technical skills but also in creativity, collaboration, social skills and emotional resilience. They need to be prepared to become (co-)citizens of the world.

Thus, in the context of higher education, by 'soft skills' we mean the degree of ease, accuracy and speed that students acquire (or not) in order to perform a range of complex mental processes, solve problems, adjust their decisions, but most importantly the way and method of thinking and handling various data, relationships, problems and situations. The development of soft skills is considered particularly important, as it is seen as a key factor in helping an individual to 'make it in life' and, in particular, in their career.

What exactly do we mean by soft skills? According to Goleman (1995, 1999) we could present them under some broad thematic umbrellas and describe them in more detail as follows:

➤ **Self-awareness:** being aware of one's inner state, preferences, personal reserves and being in touch with one's intuition. It includes:

   o   Awareness of emotions: Recognizing one's emotions, their effects and their results

   o   Accurate self-assessment: Knowing one's strengths and limitations

   o   Self-confidence: Certainty about one's worth and abilities

➤ **Self-regulation**: Being able to manage one's internal state, impulses, and personal resources. It includes characteristics such as:

   o   Self-control: Handling disruptive emotions and impulses

   o   Trustworthiness: Maintaining honesty and integrity

- Conscientiousness: Taking responsibility for one's personal performance

- Adaptability: Flexibility in handling change

- Καινοτομία: Το να αισθάνεται κανείς άνετα και να είναι ανοιχτός σε πρωτοποριακές ιδέες, προσεγγίσεις και νέες πληροφορίες

- Δέσμευση: Ευθυγράμμιση με τους στόχους της ομάδας ή του οργανισμού

- Πρωτοβουλία: Ετοιμότητα για δράση, μόλις εμφανιστεί η ευκαιρία

- Αισιοδοξία: Επιμονή στην επιδίωξη στόχων παρά τα εμπόδια και τις αναποδιές.

➤ **Self-confidence:** Having a strong sense of one's worth and abilities. Self-confidence gives a person the strength to make a difficult decision or follow a course of action they feel is necessary, despite opposition, disagreement or even outright disapproval from those in authority. Confident people tend to see themselves as dynamic, able to take on challenges and master new tasks or skills. They believe they can play a catalytic role, activate others, be pioneers, and believe they have greater and more abilities than others. From such a position of inner strength, they can better justify their decisions or actions and remain unscathed by possible opposition. Confident people are decisive without being arrogant or defensive and stick to their decisions.

➤ **Innovation and adaptability:** Being open to innovative ideas and approaches, and adapting easily to change. This is a quality required in today's world. People with this ability enjoy change and innovation, are open to new information and choose to let go of old views and therefore adapt the way they work. They are comfortable with the stress that the new or unknown often brings and are willing to take risks. Adaptability requires flexibility to consider alternative perspectives in a given situation. This flexibility in turn depends on an emotional strength: the ability to remain calm in the face of doubt and the unexpected. Another skill that underpins adaptability is self-confidence, particularly the confidence that allows one to quickly adjust one's responses as reality changes.

Flexible adaptation to a rapidly changing labour market is seen as important, especially in the context of uncertainty at all levels of the economy. Creative adaptability tends to be fostered in organisations that are less formal, allow flexible roles, give employees autonomy, have a free flow of information and work with mixed or interdisciplinary teams.

Another skill that supports adaptability is self-confidence, particularly the confidence that allows one to quickly adjust one's reactions as reality changes. Flexible adaptation to changing market realities is considered important, particularly in the face of uncertainty at every level of the economy. Creative adaptability is usually encouraged in organisations that are less formalistic, allow for flexible roles, offer autonomy to employees, have a free flow of information and operate with mixed or multidisciplinary teams.

➤ **Initiative and optimism:** Demonstration of perseverance and willingness to take advantage of opportunities. People with initiative act before external factors force them to. This often means taking proactive action to prevent problems before they arise, or seizing opportunities before anyone else sees them. Initiative is often characterised by unusual resourcefulness. While initiative is generally commendable, it should be balanced with social awareness to avoid unintended negative consequences. In today's work environment, where stress is high and frustration is common, an optimistic mindset is likely to produce better results for the employee's development.

Optimism is important when undertaking a difficult task. In fact, positive expectations can be particularly beneficial in the most difficult endeavours, where optimism can be an integral dimension of the specific task. Communication: Being open to listening and being able to deliver persuasive messages. People with this ability:

➤ **Communication:** being open to listening and sending persuasive messages. People with this ability:

  o They are effective in interaction, picking up on emotional cues to match their message.

  o They deal with difficult issues in a straightforward and direct manner.

  o They have good listening skills, seek mutual understanding and are willing to share information with others.

  o They encourage communication and are open to both bad and good news.

➤ **Conflict management:** Being able to negotiate and propose solutions to disagreements. People with this skill:

  o are able to deal with difficult people and situations with diplomacy and tact. This kind of diplomacy and tact are virtues necessary for success in sensitive jobs.

  o identify potential conflicts and work to de-escalate disagreements.

  o encourage dialogue and open discussion.

  o find successful ways out and solutions.

  o try to find fair ways to resolve a disagreement, working in cooperation with others to find a solution that both sides can adopt.

➤ **Leadership:** Inspiring and guiding individuals and groups. Being a leader requires a wide range of personal skills. One of the most important skills in leadership is the ability to 'read' the human environment, to understand what is happening. Leadership sometimes requires taking tough decisions: someone has to tell people what to do, remind them of their responsibilities, be clear about the consequences. Persuasion,

consensus building and all the other aspects of the art of influence are not always enough. Sometimes you just need to use the power of your position to get others to act. In addition to high levels of self-confidence, effective leaders need to have high levels of influence, commitment, motivation, initiative and optimism, as well as an 'instinct' for organizational politics.

➤ **Collaboration and teamwork:** Working with others towards common goals. Only a few years ago, teamwork skills were simply competencies of specific jobs, rather than a characteristic that defined almost all categories of working life. In the 1990s, however, teamwork came to be seen as a defining characteristic of successful individuals, particularly in the workplace. People with this ability:

- o balance dedication to work with attention to relationships.

- o collaborate successfully, sharing plans, information and sources of knowledge with others.

- o foster a friendly atmosphere of cooperation.

- o identify and encourage opportunities for collaboration.

- o Encourage the active and enthusiastic participation of all team members.

- o Cultivate a sense of identity, team spirit and commitment within the team.

- o Protect the team and its reputation, sharing praise with others.

➤ **Bonding:** Cultivating functional relationships. People with this ability:

- o cultivate and maintain large, informal networks of relationships.

- o seek relationships that are mutually beneficial.

- o create bonds and have good, ongoing communication with others.

- o develop and maintain personal friendships with colleagues and partners.

The most commonly reported soft skills in brief

- Communication
- Co-operation
- Critical thinking
- Empathy
- Creativity
- Negotiation
- Self-confidence

- Responsibility
- Flexibility
- Resilience
- Positive thinking and approach
- Taking initiatives
- Decision-making ability
- Leadership skills

- Problem solving
- Time management
- Collection, critical processing, assessment and dissemination/presentation of information
- Use of computers and a wide range of technological devices
- Manner in which we present ourselves

Soft skills that emerged during the pandemic

- Digital
- Active engagement in online teaching
- Critical thinking
- Communicative

- Endurance
- Problem solving
- Issue and crisis management

What (we have) to

Skills are improved through their (practical) application. This may refer to a theoretical approach, but the learning goal must focus on practical use and application through pedagogical activities (Goleman & Senge, 2015). Also, through modelling, teachers are very strong role models for young learners.

In the context of University Pedagogy, student skills can be grouped as follows:

- o Scientific

- o Research

- o Digital

- o Soft

- o Professional

Soft skills are cultivated through

➤ Academic everyday life/ modeling

➤ Activities integrated into the lessons

➤ Course objectives

➤ Skill development courses

➤ Journal clubs

➤ Workshops/Tutorials

➤ Group work/ Projects

➤ Practical exercises

➤ Other student or institutional activities

Therefore, university lecturers need to **integrate** soft skills into our academic and teaching practice. But how can this be done?

1. We must take them into account when planning our courses and describe them in the syllabus.
2. When presenting learning outcomes, we should make it clear to students that we (i.e. teachers) want our students to acquire knowledge (what do they know?), skills (what can they do?) and attitudes/behaviours (how do they think?).
3. To enrich our teaching practices with activities such as group work, small group work in the classroom or in an online environment (breakout rooms), project assignments, peer teaching, presentations to the scientific community or the general public, journal clubs (critical presentation of scientific literature among colleagues and collaborators), role plays or simulations.
4. 4. The pandemic has highlighted the importance of technology-related soft skills. With the explosion of technology and the constant development of applications and tools related to online education, teachers have the opportunity to enrich their course with multimedia. However, we need to use applications and teaching

techniques that require active learning such as student response systems (e.g. kahoot, mentimeter), flipped classrooms or technologically advanced approaches such as those supported by the metaverse.

One of the pedagogical tools that can be used, especially for laboratory and simulation teaching, is the use of virtual environments and virtual worlds (Kaltsidis & Kedrakas, 2018). Virtual reality, although not new, has undergone a particular development in recent years due to technological maturation. Virtual reality (VR) is defined as the creation of an artificial or virtual environment that is interactive and perceived by humans as real (Lepouras et al., 2015). This environment can be either real or imaginary and allows the user to interact with it using the appropriate equipment (helmets, headphones, controls, gloves, etc.).

Why it is important

Recent decades have seen the emergence of a distinct period in an individual's life and personal development that follows adolescence but does not have all the characteristics of adulthood. It is well known that people after the age of 18 and up to the age of 30 no longer belong to adolescence and have civil and legal rights. As it is also mentioned in the international literature, adulthood is not only defined by age, because this criterion is not stable, it varies both over time in different eras and in different societies (Kokkos, 2005). However, at this age, young people, most of whom are students, have not yet achieved professional stability or started their own families. The American developmental psychologist Jeffrey Jensen Arnett (2004) has systematically studied this period and coined the term emerging adulthood.

Drawing on related research (Arnett, 2007; Reifman, Arnett & Collwell, 2007), emerging adulthood is described as a phase of life characterised by developmental challenges, which in some cases can be challenging, for example due to the existence of socio-cultural differences. In his work, Arnett identified five dimensions of emerging adulthood:

α. identity explorations,
β. instability,
γ. self-focused,
δ. feeling in-between and
ε. e.   the possibilities (realistic or not) that they feel that they have (Ράικου & Φιλιππίδη, 2019).

Based on this, university teaching needs to take into account that in emerging adulthood, in addition to learning a subject, other parameters may be crucial, such as the student experience and the acquisition of soft skills (OECD, 2018). For people in emerging adulthood, effectiveness in successfully completing a task is related not only to the actual skills an individual possesses, but also to their personal beliefs about what they can achieve with those skills (European Commission, 2020). Acquiring skills alone is not enough to support good student performance. Students need to believe in their skills in order to use them to their full potential, in particular to achieve smooth cooperation and communication, taking into account group dynamics

(Tsiboukli, 2010). Individuals need to acquire not only the skills themselves, but also a methodology related to when, how, where and why a particular skill is used. Individuals need to use scientific and methodological approaches so that they can analyse, evaluate, assess and decide critically on the use and way of using a skill - and most importantly, under what conditions they will use it.

Reflect on your teaching practices

The questions that the university teachers need to ask themselves are:

o   How can I "escape" the knowledge-centred orientation of studies? In other words, how can I move from imparting knowledge to developing skills (or a combination of the two)?

o   Have I included appropriate learning activities in my teaching to support the development of students' soft skills? Have I described them in terms of expected learning outcomes in the relevant course outlines?

o   Which skills should I prioritise?

o   How will I plan my course/lesson, how will I achieve their development and how will I "measure" them?

o   What example will I set for my students? (modelling)

Useful material

European Skills Agenda - Employment, Social Affairs & Inclusion - European Commission (europa.eu)

https://www.eoppep.gr/images/SYEP/ETHNIKO_PLAISIO_DEXIOTHTON.pdf

https://www.eoppep.gr/images/SYEP/2o_EGXEIRIDIO_FOITHTON_teliko.pdf

https://www.gsevee.gr/category/katartish-deksiothtes

https://www.gametree.gr/resources/

https://era4se.eu/2022/07/25/erasmus-good-practices-for-developing-the-eight-soft-skills-identified-by-the-european-union/

https://skills.gr

https://www.youtube.com/watch?v=D_LP6ifo_tY

https://www.youtube.com/watch?v=lKSwKm21IJg

https://www.opencolleges.edu.au/informed/features/30-ways-to-cultivate-soft-skills-in-your-students/

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6. DIGITAL TECHNOLOGIES IN EDUCATION- STUDENT-CENTRED APPROACHES

Ioannis Lefkos

Understanding how digital technologies can support student-centred approaches

There are two main paradigms for learning and teaching in higher education: teacher-centred learning and student-centred learning. Teacher-centred learning and teaching tends to view students as passive recipients of information, ignoring their need to construct their own knowledge and thus actively participate in the educational process. In such an approach, the teacher occupies a privileged position as the student's primary source of knowledge. In the context of student-centred learning and teaching, students have the possibility to shape their courses and to choose learning paths within a course (European Commission, 2020).

In general, the educational process that puts the learner at the centre produces better results. These techniques and approaches may include:

- Active learning, the active involvement of learners in the subject matter, following approaches such as inquiry, project or problem-based learning. (Freeman et al., 2014; Prince, 2004).
- Cooperative learning activities, such as group work or peer assessment, which have been shown not only to enhance learning but also to promote the development of social skills (Johnson & Johnson, 2009).
- Inclusive approaches, i.e. adapting teaching to meet the different needs and interests of individual learners, as this can lead to increased engagement, motivation and improved student achievement (Tomlinson, 2014).

Digital technologies (DTs) can support these approaches in a variety of ways by supporting student-centred learning and teaching. The support provided by DTs can concern different aspects of the educational process as well as different educational conditions.

DTs also contribute to inclusive higher education by enabling distance learning. This allows students to learn without being physically present in the classroom or at times that best suit their schedules. Distance learning opportunities can attract people to higher education who would not be able to study without flexible timetables or the possibility of individual learning (European Commission, 2020).

In this chapter we will focus on the use of DT during or after the learning process, regardless of the educational conditions surrounding this process.

What we (should) know

Student-centred practices contribute to two key aspects of inclusive higher education: responding to student diversity and increasing access to higher education. These objectives can be achieved through the use of pedagogical practices, supported by technology, that engage all students and promote group participation and collaboration (European Commission, 2020).

Universal Design for Learning (UDL) (Rose & Mayer, 2002) is a framework created to address the diversity of learners and can be harmonised with the aforementioned requirements of a student-centred approach. Universal Design as a concept emerged in the 1970s in the field of architecture, but was later extended to education, enriching it with a new approach to teaching and learning (Hall, Meyer & Rose, 2012).

Representation	Action and expression	Engagement
Provide options for:	**Provide options for:**	**Provide options for:**
• Perception	• Physical action	• Recruiting interest
• Language and symbols	• Expressive skills and fluency	• Sustaining effort and persistence
• Comprehension	• Executive functions	• Self-regulation
Resourceful, knowledgeable	Strategic, goal-directed	Purposeful, motivated

Image 1: The three fundamental principles of Universal Design for Learning (source: UDL guidelines overview by Chrissie Butler (CC BY-NC 2.0))

Universal Design for Learning is a set of principles that provide educators with a structure for developing instruction that meets the diverse needs of all students.

Its main design principles are (CAST, 2018):

- o Multiple means of engagement to tap into students' interests, challenge them appropriately and motivate them to learn
- o Multiple means of representation to provide students with a variety of modalities for acquiring information and knowledge.
- o Multiple means of action and expression to provide students with alternative solutions for demonstrating their knowledge.

Universal Design for Learning aims to increase access to learning by reducing physical, cognitive, intellectual, organisational and other barriers to learning, while being appropriate for the implementation of inclusive practices ("Universal Design for Learning", 2023).

DT can support these three principles at different stages of the educational process, ultimately leading to the strengthening of student-centred approaches to teaching and learning.

What we can do in class

This section identifies indicative PTs and provides examples of their application which, in the light of Universal Design for Learning, can lead to the strengthening of student-centred approaches to teaching and learning.

a.   Use of Learning Management Systems (LMS)

Greek higher education institutions are increasingly using ICT to support the educational process, especially in recent years during and after the COVID-19 pandemic, which led to the widespread use of distance learning platforms (Learning Management Systems).

An LMS can support asynchronous collaborative processes, enabling discussions between students and teachers and between students outside the classroom (Hoidn, 2017).It can provide organised online materials for easy access, and can act as a repository for notes, presentations and other materials, even during the live process. It can also support and facilitate the collaboration process between students by creating a space where group work documents can be uploaded and used by all students, followed by giving and receiving feedback on these documents (European Commission, 2020). Typical LMS used in Greek higher education institutions are Moodle and Open eClass.

b.   Use of visualisations/representations of information

Visualisations are increasingly used in technology-enhanced learning materials such as multimedia learning environments. Visualisations can be static or dynamic. Dynamic visualisations can visualise changes instantly. When dynamic visualisations are also made interactive, learners can be given some control over how these changes are presented to them (Ploetzner & Lowe, 2004).

This category includes technologies such as concept maps, timelines, clouds, infographics, digital posters, digital maps, simulations, etc. Typical examples of such applications include PhET Interactive Simulations for Science and Maths, Mindomo, Tiki-Toki Timeline Maker, Infogram, Canva and Google Earth).

c.   Use of gamification techniques

Gamification, in essence, involves applying gaming techniques to non-game activities. For instance, in educational quizzes, learners may earn points based on their performance. The purpose of gamification is to introduce an indirect sense of play for participants without transforming the learning activity into a complete game. Gamification is particularly intriguing because research indicates that incorporating gamified elements into an environment or activity enhances student engagement and interest (Dimitriadis, 2015). Typical examples of its application include platforms like Kahoot and Socrative.

d.   Use of digital storytelling techniques

Digital storytelling is the process of creating a story by combining and integrating multimedia elements such as text, animation, music, images and narration related to a specific topic.

Digital storytelling, combined with collaboration, creativity and student participation, is considered a promising authentic learning approach and can be a source of motivation for students (Hava, 2021).

Thanks to the use of digital technology, students have more opportunities to use different learning strategies to enhance their learning, and the combination of storytelling and PT has further established it as a teaching technique and learning tool (Chang & Chu, 2022).

Typical examples of applications:

- o Storyboard That
- o Story Jumper

e. Using project-based learning approaches

Project-based learning is a pedagogical method that focuses on giving students the opportunity to learn through the completion of a project or series of projects. This approach promotes active learning, critical thinking, collaboration and problem-solving skills as students work together to investigate and solve real-world problems.

DTs can be used to support this approach as they support all the stages a project goes through, from finding the right information, organising it, storing it and reconstructing it, to completing the project.

WebQuests are applications that implement project-based learning in the form of a website available on the Internet and engage students in well-planned activities with clear and meaningful information-seeking goals, such as problem solving, critical evaluation and exchange of arguments, forming opinions and constructing new interpretations (Zimogiannis & Siorenda, 2007).

Typical examples of applications:

- ➤ WebQuest

Why it is important

Standards and Guidelines for Quality Assurance in the European Higher Education Area (2015), argue that the student-centred approach to learning and teaching makes higher education institutions more diverse, as it can support internationalisation, digitisation and the use of new forms of education. Therefore, it is important for universities to create an inclusive and supportive environment for students. The use of DT can attract people to higher education who would not be able to study without flexible timetables and the possibility of individual learning (European Commission, 2020).

In the previous sections we have given examples of the use of applications which, when integrated into the appropriate pedagogical framework, can support student-centred approaches both during and after teaching.

Reflect on your teaching practices

A Reflect on your teaching practices by answering the following questions:

(Yes/ No/ Maybe)

1. Do you incorporate Learning Management Systems into your face-to-face teaching to organize and provide access to materials such as modules, documents, links, and multimedia for your students after class?
2. Do you also use Learning Management Systems in face-to-face educational settings to support collaboration between students after the course, e.g. messages, tasks, creation of groups?
3. Do you use learning management systems, even in face-to-face educational settings, for student assessment / self-assessment, e.g. exercises, assignments?
4. Do you use technologies/applications for visualisation/presentation of information as a tool to help students better understand concepts from your teaching, e.g. word clouds, timelines, concept maps, posters?
5. Do you invite your students to use technologies/applications for visualizing/representing information in your lessons as a method of expressing their opinions/ideas? e.g. word clouds, timelines, concept maps, posters?
6. Do you use gamification technologies/applications in your teaching as a means of motivating your students?
7. Do you invite your students to use gamified learning environments in combination with targeted activities, e.g. to compete in teams?
8. Do you use technologies/applications to create digital stories as a tool to help students better understand concepts from your lessons?
9. Do you invite your students to use digital storytelling technologies and applications in your courses as a way of expressing their opinions/ideas?
10. Do you use technologies/applications that support project-based learning approaches?;

Useful weblinks

- https://el.wikipedia.org/wiki/Open_eClass
- https://moodle.org
- https://www.mindomo.com
- https://www.tiki-toki.com
- https://wordart.com
- https://infogram.com

- o https://www.canva.com
- o https://earth.google.com/web/
- o https://phet.colorado.edu/el/
- o https://kahoot.com
- o https://www.socrative.com
- o https://www.storyboardthat.com
- o https://www.storyjumper.com
- o https://digedu.korinthos.uop.gr/openwebquest/

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7. TEACHING PEOPLE WITH LEARNING DIFFICULTIES

Iphigenia Dosi

Understanding what it means to teach students with learning difficulties

- We often notice that there are students with learning difficulties in our student population.
- They may not tell us about their difficulties because of shame or fear of being judged as "lazy" or "indifferent".
- It is important to understand learning difficulties in order to be able to help our students in the learning process and to build their confidence and self-esteem.
- Knowing more about learning difficulties will improve and enrich our own work as educators.

What we (should) know

- Learning disability is a general term used to describe a heterogeneous group of disorders characterised by significant difficulties in the acquisition and use of language (spoken and written).
- These disorders are congenital and are observed throughout the life of the individual. However, some individuals develop masking strategies in adult life.
- The best-known learning difficulties are dyslexia, dysgraphia and/or dyscalculia. Less well known is Developmental Language Disorder, which has some features in common with dyslexia.
- The above disorders may co-exist with other disorders such as Attention Deficit Hyperactivity Disorder (ADHD) or Autism Spectrum Disorder (ASD). Thus, we often observe the coexistence of disorders, i.e. comorbidity.
- As learning disabilities can manifest themselves in a broad spectrum, students with learning disabilities show heterogeneous characteristics. This means that, taking into account cases of comorbidity, the profile of students with disabilities differs from one student to another.
- Pupils with learning disabilities have problems in organising and managing their space, time and thoughts.
- The above problems may affect students' ability to reason and/or do mathematics.
- People with learning disabilities are often highly intelligent but, despite their efforts, find it difficult to achieve high levels of academic achievement. As a result, they feel disappointed and ultimately avoid the learning process.

➤ Finally, we must remember that their brains are structured and work differently from the rest of the students.

> With appropriate assessment, students with learning disabilities are able to learn in a different way and to achieve high levels of student achievement.

What we can do in class

➤ Firstly, we can get to know our students better.
➤ We can use online tools (e.g. Padlet, Mentimeter) that support anonymity to identify the characteristics of our audience by asking questions such as
   o What would you like to encounter and not encounter in the course?
   o What are your strengths and weaknesses in the learning process?
➤ You should give them the opportunity to respond not only during the lecture, but also a few days after, to give them the chance to answer the questions in their own space and time.
➤ It is recommended that we devote some of our time (outside of class) to students with learning difficulties. We can arrange a meeting during our office hours to get more information about their linguistic and cognitive profile in order to better adapt our teaching and the way(s) we present our teaching materials.

Differentiated instruction

➤ Some general good practices are the following:
   o Visualisation and illustration (charts, graphs, colours, highlights, shapes, layouts, concept maps, bold type, colours, timelines, etc.) help students with learning disabilities.
   o These people need more time to complete an assignment or exam.
   o We need to give them clear and understandable instructions that can be broken down into steps. It is better to give instructions both verbally and in writing.
   o Feedback should be direct, specific and in simple terms. We focus on the positive points first and then comment on the points that can be improved.
   o We can allow students with learning difficulties to record our lecture or give them a printed version of the main points.
   o We grade written assignments on ideas only or give two grades (1) for content and (2) for the presentation/structure of the essay.
   o We allow students to give oral rather than written answers whenever possible (e.g. in exams).

- o We help them to organise themselves by setting rules and clear deadlines. At the same time, if we see that there is a serious problem, we remain flexible and revise our deadlines.
- o We adopt a routine in our classes that reinforces the learning and that will have the following structure:
  - ➢ Repeating important points from the previous lesson through questions or exercises
  - ➢ Presentation of the structure of the new course
  - ➢ Presentation of the content of the new course
  - ➢ Summary of the main points of the new course
  - ➢ Exercises to consolidate the new information
- o Minimise distractions in the room or ask students with disabilities to sit in the front.
- o Allow breaks or movement time for our hyperactive students. This practice should be agreed, respecting the above limits.

> Each case is unique and it should be treated as such

Why it is important

It is important to be aware of our students' learning difficulties so that we can use appropriate strategies to provide effective teaching.

An inclusive classroom environment makes all pupils feel important and welcome.

Our students will feel better, have more confidence and be more actively involved in the learning process.

We will also develop our own teaching skills, classroom management skills and problem solving strategies.

> By creating a course for all, we create a sense of equality and boost the confidence of our students

Reflect on your teaching practices

We need to look and learn about the learning difficulty and the associated disorders that our student may have.

It seems important to implement differentiated instruction.

We try to make small and gradual changes to our teaching methods.

We must have high, but not unattainable, goals for students with learning difficulties, taking into account the different brain functioning of these individuals.

It is advisable in our last lecture to ask our students to evaluate the course by answering the three questions below anonymously and online, so that we can improve our next lectures:

➤ What went well?
➤ What went wrong?
➤ What could have gone better?

> Reflection is the motivation for successful teaching

Useful material

https://www.ncld.org/wp-content/uploads/2021/02/Distance-Learning-Toolkit-1.pdf
https://tech.ed.gov/files/2018/10/18-0158-EducatorToolkit-2018-10-12.pdf
https://cft.vanderbilt.edu/guides-sub-pages/disabilities/
https://accessiblecampus.ca/tools-resources/educators-tool-kit/teaching-tips/teaching-students-with-learning-disabilities/

8. TEACHING STUDENTS WITH VISUAL IMPAIRMENTS

Athanasios Koutsoklenis

Understanding what it means to teach students who visual impairments

Students with visual impairment (blindness or low vision) are a heterogeneous population. This heterogeneity results from differences in the causes of vision loss, the age of vision loss, its type and degree, the presence or absence of disorders, etc. (Corn & Koenig, 1996). It follows that students with visual impairments require different accommodations, which should be individualised according to each student's profile. Indicatively, students with visual impairments use different reading media such as Braille, screen reading software, screen magnification software and combinations of the above (Papadopoulos & Koutsoklenis, 2009).

What we (should) know

A visual impairment can be considered on a continuum of vision loss. In general, it refers to people who have a visual impairment that cannot be corrected by the use of lenses. Visual impairment can be defined in legal, clinical or educational terms. From an educational perspective, people with blindness are those who primarily use their sense of touch and hearing to perform everyday tasks (Corn & Koenig, 1996). People with low vision are defined as those who have difficulty completing tasks that require visual skills, even with the use of corrective lenses, but who can successfully complete these tasks through the use of compensatory visual skills, low vision aids and other adaptations (Corn & Koenig, 1996).

What we (should) do

The good practice guidelines described below aim to make the teaching materials and the teaching process in university courses more accessible to students with visual impairments. Due to the great heterogeneity of the population of visually impaired students, it is necessary to individualise the adaptations and arrangements required according to the profile of each visually impaired student. Therefore, the following is only indicative and by no means exhaustive of the

possible adaptations, modifications and other arrangements that may be needed to facilitate learning for students with visual impairments.

General instructions

Communication

➤ Greet students on entry and exit from the classroom.
➤ Introduce yourself by name; do not assume that visually impaired students will recognise you from your voice. Ask your students to do the same when they speak.
➤ Speak directly to students (with or without visual impairment), not through their companion or a third party.
➤ Address students with visual impairments by name.
➤ Be specific and descriptive in your instructions, avoiding indefinite terms such as "there", "here", "this", etc.
➤ You don't have to avoid commonly used expressions that refer to sight, such as "nice to see you". People with visual impairments understand and use these expressions.
➤ Do not speak loudly to visually impaired students - they are not hearing impaired.
➤ Do not deny the consequences of impairment and disability. Avoid expressions such as "Come on, we're all disabled to one degree or another".
➤ Do not ask for personal information about the impairment. Avoid questions such as "What happened to you?" and "When did you get it?
➤ Do not reward or admire students with visual impairments without reason. Avoid expressions such as "You disabled people are an inspiration to us all".
➤ Post your opening hours and contact details in Braille outside your office, in cooperation with the relevant support service at your university).

Raise awareness

o Inform students with visual impairments about the fixed and mobile Accessible Workstations of the Democritus University of Thrace (https://dosyp.duth.gr/stathmosergasias_/)
o Inform students with visual impairments about the Academic Study Advisor and help them to locate their own.

find support and resources

➤ Contact the Teaching & Learning Support Centre (https://ctl.duth.gr/) and the Counselling and Accessibility Unit (https://dosyp.duth.gr/) of the Democritus University of Thrace, to discuss the opportunities provided by our University and your concerns regarding the successful integration of students with visual impairments in your courses.
➤ Collaborate with the Academic Advisor for students with visual impairments to personalize your teaching more effectively.

Lesson delivery

When giving information to visually impaired students, it is important that the information is given in as organised and structured a way as possible. Remember that visually impaired students process information without visual cues, such as body language.

- o Make the notes available electronically before the lectures. You can use the university's Learning Management System to do this.
- o Describe what you write on the board during class.
- o Explain verbally the pictures and diagrams you show in your presentation.
- o If your presentation is based on a demonstration of a specific procedure, describe orally what you are doing in a clear and concise manner. If the demonstration involves equipment, allow the objects to be touched either during or before the lecture.
- o If you use videos in your lecture, read the subtitles aloud.
- o If your lecture is delivered via an online platform, make sure you give the presentation and other teaching materials to the student in advance and describe the material you are showing or read the content of the slides aloud if you think it will be useful for the learning process.

Printed material

All materials required for the course (handouts, notes, scientific articles, etc.) must be provided in advance and in time to allow for any necessary conversions, such as enlarged print or Braille. If, for any reason, students with visual impairments do not have access to adapted materials or appropriate assistive technology, allow for the use of a "live reader", i.e. a student without visual impairments who reads the material aloud to the student with visual impairments.

For students who are unable to use/process visual information:

- ➤ Share digital materials. Digital materials lend themselves to the use of a computer or other electronic device with screen reader software.
- ➤ Avoid or limit the use of tables, columns and charts where possible. Translation is difficult and some screen readers do not read the information well.

For students who are able to use/process visual information:

- o Use typed (not handwritten) text.
- o Use sans serif fonts such as Arial, Calibri and Tahoma.
- o Choose font sizes of 18 and larger.
- o Consult students with visual impairments about the colour contrasts that best suit their functional vision (background & font colour).
- o Keep the layout of your materials simple and clear.
- o Avoid text on patterned backgrounds.

Assignments

Visual impairments can affect students' access to standard computer programs and research tools used for writing assignments. Access to textbooks, journals, conference

proceedings or other resources may be difficult. Many students will need adjustments to complete their written assignments.

➤ Allow and encourage the use of assistive technology for writing assignments.
➤ Allow more time for the assignments from the outset or consider giving an extension to the submission deadline.
➤ Allow for a choice of different ways of presenting the content of the assignment.

Exams

Students with visual impairments will need special arrangements for their examinations, depending on the reading and writing media they use and the type of course in which they are being examined.

o Enable viewing on a laptop or desktop computer and allow the use of any necessary software (screen reader software, screen magnifier software, etc.).
o Allow the use of low-tech aids such as magnifying glasses or high-tech aids such as closed-circuit television.
o Provide examination materials in the format required (e.g. enlarged prints).
o Allow extra time for the examination. Some visually impaired students may experience eye strain and need frequent breaks, while others may need more time to read graphs and diagrams tactilely.

Orientation & mobility

Orientation is defined as a person's ability to use their senses to know their position in the environment at any given time. Mobility is defined as the ability to move efficiently, independently, safely and comfortably. Techniques commonly used by visually impaired people for orientation and mobility include using a white cane, moving with a sighted guide, moving with a guide dog, using tactile maps, and using technological navigation aids.

➤ Describe the layout of the classrooms. If necessary, allow and facilitate familiarisation with the classrooms,
➤ before the start of the course.
➤ Ensure that there are no movable obstacles (e.g. chairs, benches, wastepaper baskets) in the classrooms.
➤ Inform visually impaired students if the layout of the classroom changes.
➤ Allow visually impaired students to sit where they are most comfortable using a guide dog.
➤ Advise sighted students not to pet or distract the guide dog without the permission of the visually impaired student.
➤ Familiarise yourself with the basic techniques of a sighted guide in case you need to accompany visually impaired students. You can watch informative videos such as this one:
https://www.youtube.com/watch?v=FYAIMgTQXZg&ab_channel=TheAmericanFoundationforth eBlind

➤ Do not interrupt visually impaired students when they are moving independently with a white cane. Don't catch them without their permission and don't assume that they can't act independently.

Laboratory courses

The instructions given above for the delivery of courses also apply to laboratory courses. Depending on the nature of the laboratory and the laboratory course, more emphasis may need to be placed on safety issues and familiarisation with the room.

o Describe the laboratory space and materials orally to the visually impaired student.
o Allow the student to explore the room and materials by touch.
o Ensure that there are no cables, furniture or other objects that might impede the movement of visually impaired students.
o Consider alternative activities and exercises that may be easier to carry out but have the same or similar learning outcomes.
o It may be necessary to convert certain laboratory materials from visual to tactile (two-dimensional or three-dimensional).
o Try to keep laboratory materials in the same place each time.
o Ensure that chemical materials are placed in appropriate containers with Braille labels and enlarged text.
o Add descriptive captions to the videos you want to show. If this is not possible, describe yourself or ask another student to verbally describe the content of the video.
o Avoid the use of fragile materials for safety reasons where possible.
o Organise laboratory activities in pairs or small groups so that the sighted students can describe the activities to the visually impaired students.
o Make creative use of available technology, e.g. allow visually impaired students to complete a closed circuit using an audio rather than a visual signal, or use colour detectors.

Field exercises & visits to non-formal education organisations

➤ Consider alternative activities and exercises that may be easier to carry out but have the same or similar learning outcomes.
➤ In the case of a practical exercise, facilitate a preliminary visit to the site to familiarise students with it before they start their tasks.
➤ Use sighted students as sighted guides.
➤ Give preference to visits to non-formal education settings that are accessible to visually impaired students. If this is not possible, describe in detail the space and the objects on display.
➤ If touching is not allowed in a non-formal education setting (e.g. a museum), contact the person in charge in advance to explore the possibilities of audio description or the provision of tactile exhibits.

Why it is important

Students with visual impairments often face a number of challenges when attending university. These challenges are related to the idealisation of normality and the resulting inaccessible attitudes and practices. The above-mentioned adjustments - which must always be made in cooperation with the visually impaired student - will help both to alleviate the effects of the impairment and to remove obstacles, thus making university attendance not only possible but also more attractive and effective.

Reflect on your teaching practices

- Have you met with visually impaired students to discuss their needs and the types of adjustments and accommodations they require?
- Have you taken into account the above guidance in relation to course delivery, printed materials, laboratory courses, examinations, assignments, work placements, field trips and visits to non-formal education organisations?
- Have you encouraged students with visual impairments to contact the support unit and counsellors who can help them with resources and expertise?

Useful material

- Access Adobe
- American Foundation for the Blind
- American Printing House for the Blind
- Apple Accessibility
- Association for Education and Rehabilitation of the Blind and Visually Impaired
- British Journal of Visual Impairment
- Journal of Visual Impairment & Blindness
- Microsoft Accessibility
- STEM-VI Research Laboratory at UAH

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9. SUPERVISING THESES AND DISSERTATIONS

Konstantinos Petrogiannis

Understanding what it means to supervise a thesis

Final assignments per study cycle, i.e. bachelor thesis, master thesis, doctoral dissertation, entail the formation of a special collaborative relationship that develops between student and supervisor, a supervisory relationship, which has been described as "the most important channel of intellectual inheritance between one generation and the next" (FAUSA, 1979).

This relationship, which is determined by a number of characteristics related to the study context, the individual characteristics of the supervisor and the student, the duration of the work, the requirements of the work, the system/structure of university studies, etc., essentially concerns the development and completion of a research project that will be submitted as a requirement for the completion of the respective degree (undergraduate, postgraduate or doctorate). In the context of this relationship, the supervisor assumes various roles in the context of guiding and supporting the student throughout the preparation phase up to the writing of the thesis. The supervisor's role includes helping the student to develop a research proposal, providing feedback on draft chapters and advising on research methods, data analysis and interpretation of results, and the writing of the final thesis. These roles may vary depending on the level of study and duration of supervision, as well as the area of research, and may also change during the course of the programme, particularly in the case of a doctoral thesis (Eley & Jennings, 2005). One of the main aims of a supervisor is to help the student develop into an independent researcher (Eley & Jennings, 2005). The quantity and quality of supervision has a significant impact on the student's experience and progress, particularly at doctoral level, in terms of whether or not work is completed, time to completion, student wellbeing and satisfaction, and the skills developed (Ives & Rowley, 2005).

Over the last twenty years, supervision has been approached as a specialised form of 'teaching' with its own institutional roles and responsibilities (Emilsson & Johnsson, 2007; Firth & Martens, 2008) and as a distinct type of pedagogy (Boud & Lee, 2005; Guerin et al., 2015; Johnson et al., 2000; Kamler & Thomson, 2014; McCallin & Nayar, 2012? Petersen, 2007). Supervisors need to manage a range of responsibilities and tasks, and fulfil a variety of roles, from managing assignments and teaching research skills to supporting students in dealing with feelings of frustration and dissatisfaction. A number of studies cover different aspects of thesis supervision, particularly at doctoral level, such as:

a. the nature of the supervisory relationship (e.g. Mainhard et al., 2009)
b. the effectiveness of different supervisory styles (e.g. Deuchar, 2008)
c. the pedagogical methods of supervision (e.g. Lee, 2008)

the role and training needs of supervising teachers (e.g. Emilsson & Johnson, 2007).

What we (should) know

Pedagogical models of supervision

In order to analyse and ultimately support the pedagogical work of supervisors, several pedagogical models have been developed with the aim of identifying and describing the different styles (or orientations) of supervising student research projects, with the ultimate aim of facilitating the supervisor-student relationship with an orientation towards the students' preferences and needs for their development (Andriopoulou & Prowse, 2020; Gatfield, 2005; Gurr, 2001; Lee, 2008; Mainhard et al., 2009; Orellana et al., 2016). The aim is to achieve the best possible collaboration between students and their supervisors, based not only on the topic of the research in question, but also on interpersonal compatibility (Bastalich, 2017).

It should be mentioned that, compared to other areas of pedagogy, supervision has been less studied in terms of relevance, effectiveness and applicability of the proposed pedagogical models (McCallin & Nayar, 2012). As a result, there is insufficient research to show whether certain pedagogical models are more effective than others, for example, in increasing student satisfaction and improving graduation rates.

Central to the supervisor-student relationship is the supervision style adopted by the supervisor. Geoff Gurr (2001), in an attempt to develop a model that would be relevant across disciplines, drew on Anderson's (1988) ideas about supervision styles and proposed a dynamic model for the 'matching' or alignment of such a style with the student's level of development, which he saw as a transition from dependence to competent autonomy. The idea is that at the end of the supervised work, especially in the case of a doctoral thesis, the supervised student should be an independent researcher who knows the expectations and standards of his field and can evaluate his research designs against them. The supervisor must be able to change and adapt his/her supervisory approach, ranging from an involved/active ("hands-on") to a discreet/non-intrusive ("hands-off") style, depending on the needs and the student's (research) development path.

The Supervisor/Student Alignment Model is a two-dimensional, dynamic model (see Figure 1) in which the supervisor and supervised student design a representation of their relationship with the aim of promoting self-reflection and initiating a conversation about the supervisory relationship (Gurr, 2001). Central to the model is that effective supervisors are flexible in their supervisory style in order to enhance student autonomy. Gurr's model is defined by two basic dimensions: the supervisor's approach (active/involved - non-intrusive) and the student's development (autonomy-dependency), which form a grid with four categories of a supervision situation.
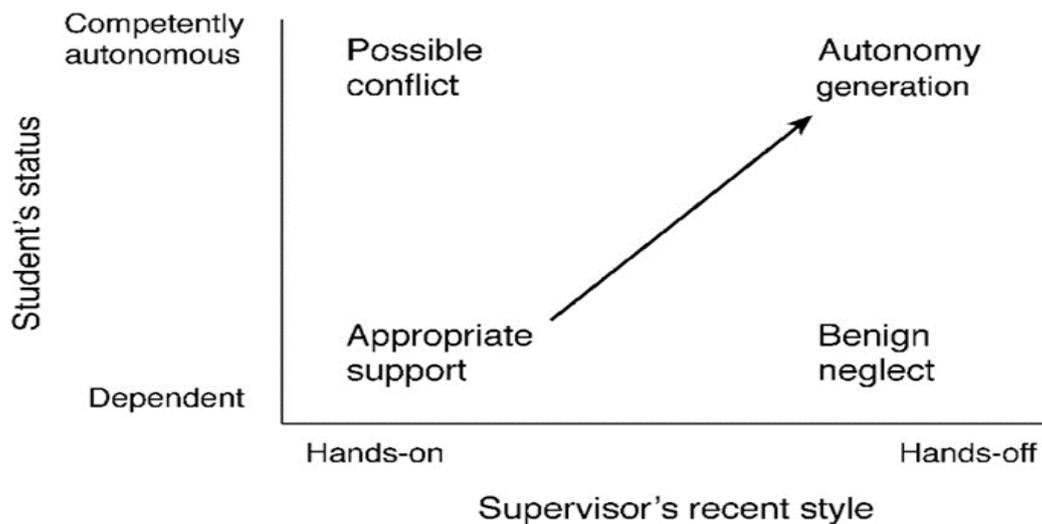
Figure 4. *Gurr's two-dimensional "Supervisor/Student Agreement" model showing results for four combinations of student status and supervisor approach, and hypothetical agreement/concordance line during the research*

A more recent model developed by Gatfield (2005) focused on the supervisory processes and developmental changes that occur over time. From his analyses, Gatfield identified three sets of factors that influence doctoral completion:

a. *Structural factors: these relate to organisational processes (selection of candidates, definition of roles, etc.), accountability and stages of the doctoral process (contractual arrangements, milestone evaluations, etc.) and to the provision of skills (methodological, writing, statistical training, etc.).*

b. *Supporting factors: these relate to various aspects of support provided either by the institution, such as physical (e.g. office space), financial (e.g. research funds) or technical (e.g. software) support, or by the supervisor (e.g. encouragement, mentoring, confidence building).*

c. *the exogenous factors: include all those variables that don't belong to (a) or (b) and that are brought into the situation by the candidate or the supervisor(s) (e.g. interpersonal skills, contribution of the second supervisor).*

Gatfield (2005) developed a conceptual model that includes only the first two groups of factors.

(see Figure 2), represented by two axes, creating a space of four quadrants corresponding to four different styles of supervisory management:

1. 1. Laissez-faire style: characterised by a low level of structure and support. Here the student has limited motivation and management skills, the supervisor is non-directive and does not engage in much personal interaction and may appear uninvolved.

2. Pastoral style: characterised by low structure but high support. In this case, the student has low management skills but takes advantage of all the support available, while the supervisor provides significant pastoral care and support, but not necessarily in a task-oriented, directive capacity.

3. Directive style: characterised by high structure but low support. Here the student is highly motivated and sees the need to benefit from participating in highly structured activities such as

The supervisor has a close and interactive relationship with them, but the supervisor avoids involving the student in unrelated matters.

Involving the student in unrelated matters (i.e. non-task issues).

4. Contractual style: characterised by a high level of structure and support. It is the most demanding in terms of supervision time. Here the student is highly motivated and able to take initiative and the supervisor is able to give direction and has good management and interpersonal skills.

This model is dynamic in the sense that, in order for the student to be successful, the supervisor's style will need to change over time during the PhD, depending on the stage of completion of the PhD.
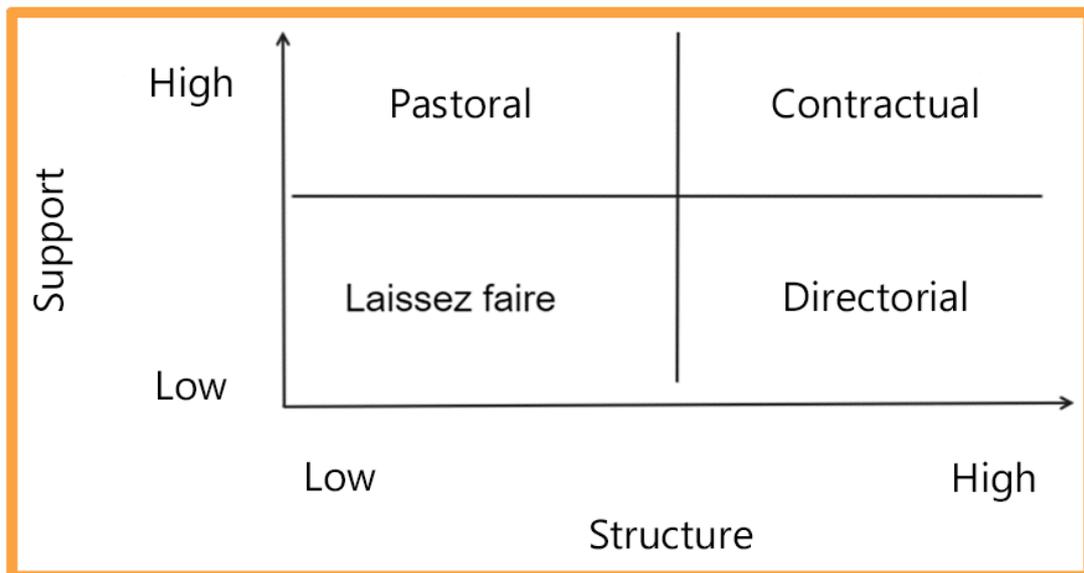

Figure 5. The two-dimensional (support and structure) conceptual model of the supervisory relationship by Gatfield.

Ann Lee (2008) has formulated a theoretical framework based on her empirical research with doctoral supervisors, identifying five interdependent approaches to supervision (refer to Table 1):

➤ Functional approach: it emphasises the professional role of the academic whose main tasks are to direct and manage projects.
➤ Enculturation: refers to the supervisor's efforts to facilitate and encourage the integration of students into the department and the institution, so that they become part of the of the student into the department and the institution, so that he/she becomes a member of the scientific community of the area where

the research is carried out in general. The professor guides the student to existing (learning) resources and networks.

➤ Critical thinking: this refers to the development of the supervisee's critical capacity. Students are encouraged to think critically, question and analyse their research. This model is central to doctoral supervision.

➤ Emancipation: Students are encouraged to question and develop themselves. It refers to the conceptualisation of the supervisory relationship as a process of guidance (mentoring, coaching) in which the supervisee is encouraged to move from dependence to higher levels of agency and self-development.

➤ Relationship development: refers to the quality of the supervisory relationship in which the supervisee feels recognised, encouraged and supported. The more dependent side of this relationship relies on the supervisor taking the initiative. It includes the desire to enthuse, to encourage, to recognise achievement and to offer pastoral support.

➤ .

	Λειτουργική προσέγγιση	Εγκλιματισμός	Κριτική σκέψη	Χειραφέτηση	Ανάπτυξη ποιοτικής σχέσης
Supervisor 's Activity	• Rational progress/advancement through tasks • Provision of advice • Technical guidance	• Protective/ Guardian • Recommendations to specialized experts with high-level tasks	• Evaluation • Challenge • Inquiry-based relationship	• Guidance • Constructive guidance	• Experience-based supervision • Developing relationships with peers (individually or collectivelly)
Knowledge and Skills of the Supervisor	• Guidance • Leadership • Negotiation • Work Management	• Identification of shortcomings/weaknesses. • Guidance	• Arguments • Analysis • Synthesis	• Facilitation • • Reflection	• Conflict management • Emotional intelligence
Possible Student Reaction	• Compliance • Information Provision	• Role modeling • Apprenticeship	• Ongoing exploration • Synthesis • Fight or flight	• Personal development, • reframing	• A good team member • • Emotional intelligence

Table 1. The theoretical framework for Ann Lee's supervisory relationship concepts (Source: Lee, 2008)

The importance of the interpersonal aspect of the supervisory relationship was also recognised by Mainhard et al. (2009), who argued that students' views on their relationship with their supervisor can be a source of feedback to improve supervision, as the success of a doctoral programme largely depends on the interpersonal relationship between supervisor and student. They developed a questionnaire that examines the supervisor's interpersonal style from the student's perspective (Questionnaire on Supervisor-Doctoral student Interaction - QSDI), which provides a framework for discussing the supervisor-doctoral student relationship. It can be used

to explore doctoral students' preferences for supervisory style and to provide feedback to supervisors on their interpersonal style with the aim of improving it (Mainhard et al., 2009). In essence, this means that the same supervisor may display completely different behaviours when interacting with behaviour when interacting with different students. Their model of supervisor interpersonal behaviour consists of two independent dimensions (axes), Influence and Proximity, across eight types of behaviour (see Figure 3).

1.   leadership,
2.   helpful/friendly,
3.   understanding,
4.   giving freedom and responsibility to students,
5.   uncertainty,
6.   dissatisfaction,
7.   admonishment, and
8.   strictness

A supervisor's behaviour may be a combination of high or low influence with high or low closeness. For example, it may be helpful for a supervisor to know that they can provide guidance either by setting strict rules based solely on their experience (high influence, relative opposition) or by anticipating or adapting to the student's wishes (high influence, relative cooperation).

This model has some similarities with Gatfield's (2005) model described above. However, it is not limited to describing the interactive nature of the supervisory relationship, but also allows for the mapping of different levels of behavioural intensity.
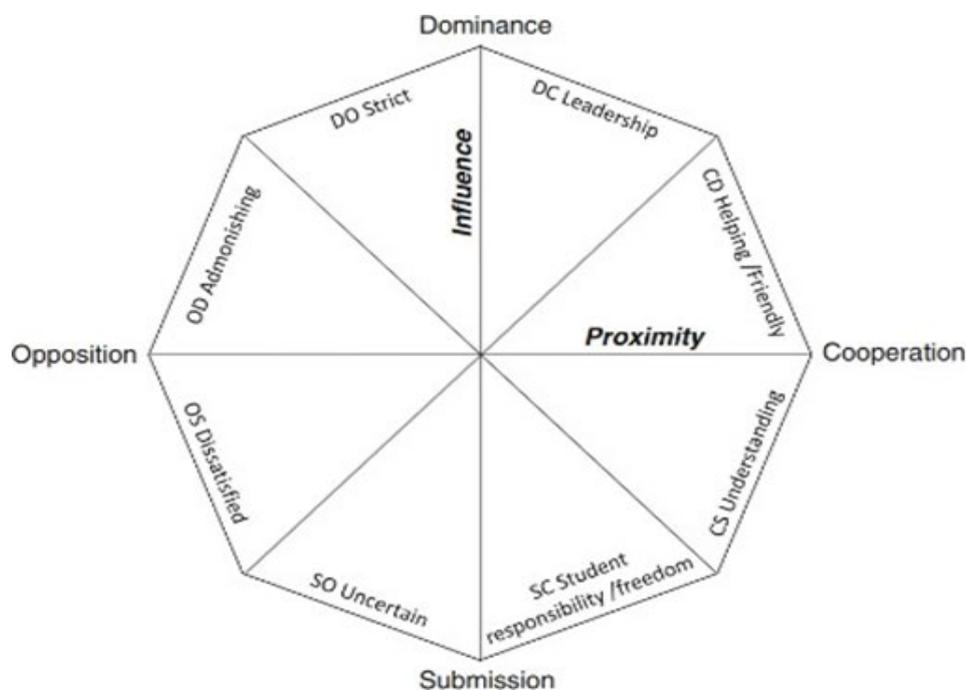

Figure 5. Το μοντέλο διαπροσωπικής συμπεριφοράς του επιβλέποντος του Mainhard (πηγή: Mainhard et al., 2009)

The common feature of the above supervision models is that they focus on the supervisor, although they also consider the student dimension (Orellana Hernández et al., 2016). For Maxwell & Smyth (2011), the "supervisor-student" relationship is more complicated than the "student-teacher" relationship, as teaching is necessary, but the ultimate goal is learning on the part of the doctoral student. The main role of the supervisor is not administrative-managerial - as the research work concerns the student, who is responsible for making decisions - but to succeed in making the student an autonomous researcher. The question of functional leadership is useful in this context, as it changes according to the needs of the work and the abilities of the student. For example, the supervisor is responsible for setting the assessment criteria, while the student is responsible for producing the text, thus giving the relationship a mentoring aspect (Maxwell & Smyth, 2011).

Maxwell and Smyth's (2011) model of supervision includes three central interrelated elements: the student, the knowledge and the research project. The intersection of the research project and the student reflects the student's progress towards autonomy as a researcher. The intersection of the research project and the knowledge reflects learning about the research process, while the intersection of the knowledge and the student reflects the teaching/learning process and creativity according to the cognitive needs of the student. The intersection of all three elements, the transformation zone, is the central feature of the model and the most complex element reflecting the student's progress in becoming a teacher and researcher.
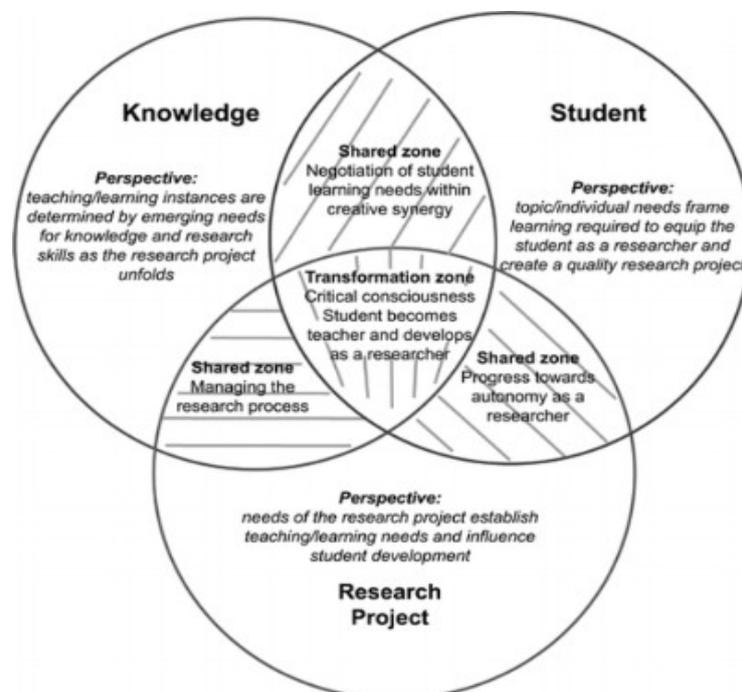
It should be noted that most of the theoretical models mentioned above recognise the importance of the interpersonal dimension of the supervisory relationship. Recent studies have also shown that the supervisory relationship in research is an important factor (although not the

only one) in student satisfaction, retention and completion of research by supervisees (David, 2020). Thus, the importance of the socio-emotional parameter of the supervisory relationship has been increasingly recognised in recent years, with particular emphasis on attachment theory and individual differences in how people relate and interact with each other based on attachment orientation (i.e. whether a person has a secure or insecure attachment orientation based on experiences from early interactions with attachment figures). These differences are important not only in the context of close or intimate relationships, but also in the context of professional (Wu & Parker, 2017) and supervisory relationships (Riggs & Bretz, 2006).

Research in management and leadership has shown that insecure attachment among managers predicts employee burnout, job dissatisfaction (Ronen & Mikulincer, 2012), poorer socioemotional functioning, and poorer mental health (Davidovitz et al., 2007).

Similarly, doctoral students who had supervisors with an obsessive-compulsive attachment style rated their supervisors as less professionally developed compared to the ratings of supervisors with a different attachment style (Foster et al., 2006). The researchers interpreted this finding in the light of evidence showing that supervisors with an anxious/obsessive attachment style have a negative view of themselves (Bartholomew & Horowitz, 1991), which leads them to discount the abilities of their supervisees in an effort to boost their own self-esteem. Similarly, Riggs and Bretz (2006) found that supervisees who perceived their supervisors as secure rated their bond with their supervisor higher than supervisees who perceived their supervisors as insecure (for a related discussion, see Andriopoulou & Prowse, 2020, 2022).

> ➢ Which theoretical model expresses you the most?
> ➢ Or which model do you feel closer to?

What we can do in class

What are the characteristics of an effective supervising teacher?

Undoubtedly, supervising research is a particular form of pedagogy (McCallin & Nayar, 2012), in which supervisors have to fulfil several roles, ranging from task management and pedagogical support to developing and maintaining positive working relationships with students (Bastalich, 2017). At the national level, some countries have identified the skills that should be developed during doctoral study (Gilbert et al., 2004). In the UK, for example, the Researcher Development Framework (Vitae, 2010) has been developed to enable researchers to assess and plan their professional development. The framework consists of four (4) domains, 12 sub-domains and 63 descriptive items. It refers to knowledge, intellectual skills, techniques and professional standards for research, as well as personal qualities, knowledge and skills for working with others and ensuring the wider impact of research (Vitae, 2010). Based on this framework, the Skills Forge online platform has been developed to support students and institutions by (Skills Forge, n.d.):

- Improving the efficiency and effectiveness of relevant processes,

- increasing engagement with higher education systems and processes,
- Suggest better monitoring mechanisms,
- provide more sophisticated and transparent information to stakeholders,
- ensure compliance with internal and external regulations, and
- improve professional/operational continuity.

The role of the supervisor, particularly in the case of doctoral supervision, is crucial to student success. Poor supervision can have a significant impact on students, limiting not only the quality of their work but also their motivation. Research has shown that consistent, careful supervision and availability are key to successful completion of postgraduate programmes

(Abiddin et al., 2009). Indeed, there is considerable debate about what constitutes 'effective' supervision, and based on the above theories, it appears that among the various common features of responsibilities/tasks captured in the various codes of practice and related studies/analyses of research supervision (see for example Abiddin et al, 2009; Cryer, 2000; Denicolo, 2004; Eley & Murray, 2009; Hockey, 1996; McQueeney, 1996; Phillips & Pugh, 2012, 2000; Salmon, 1992; Seagram et al. 1998; Spear, 2000), the most common responsibilities, skills and personal characteristics of the effective supervising teacher are analogous to those of the combination of 'good teacher' and 'good advisor' and converge on the following:

- act as a mentor, provided that a mentoring relationship requires mutual respect based on high academic standards, similar interests and regular contact;
- Support students with empathy, advice and encouragement,
- provide ongoing guidance, support and reassurance to the student and keep the student's morale high,
- be able to use flexible supervision strategies and adapt them to the individual characteristics of each student,
- give constructive feedback on the student's choice of subject, on the texts he or she is gradually producing in terms of direction, completeness, clarity, methodology and general progress,
- have sufficient knowledge and skills in the field of research that the student's work touches on, even if they are not experts in the thesis topic,
- assess the developmental needs of the student,
- know where to refer students when serious personal problems begin to affect their work,
- be sensitive to and help students to recognise the limitations of their time and abilities,
- give students enough time to think about their work and the freedom to take a trial-and-error approach at the beginning,
- help and motivate the student to prepare for presentations at conferences, publications and reviews,
- be critical friends,
- advise on career paths and opportunities for professional development
- respect their supervisees as people and as developing professionals and be sensitive to individual differences (e.g. gender, race and ethnicity)
- Inspire confidence,

- have listening skills
- have a sense of humour that helps both supervisor and supervisee get through the difficult parts of their work together and maintain a healthy perspective on their work.

> - Which elements of the list are suitable for supervising bachelor thesis or master thesis?
> - Which elements of the list are exclusively related to the supervision of doctoral theses?
> - What other items would you include?

Setting expectations and goals

Regardless of the administrative structure and support from supervisors, it is important that the supervisor knows what the student's expectations of him or herself are so that they can determine the necessary research skills to be taught and encourage the development of the doctoral candidate into an academic, but also be able to modify them along the way (Phillips & Pugh, 2012).

Doctoral student satisfaction has been linked to the support they receive in developing academic writing skills, which is a critical component of supervision (Heath, 2002). The supervisor is expected to encourage this and provide effective feedback (Heath, 2002). Important elements of student supervision that are key expectations have been captured in relevant research (Bui, 2014). These are: providing research guidance and advice, emotional support and constructive feedback, guiding students to find their own way, collaborating with others and promoting the active integration of the doctoral student as a member of the scientific community.

Bui (2014), who conducted interviews with supervisor-student dyads, found that there are three types of expectations that are important to the supervisory relationship:

> - Expectations of intellectual capacity: these included the frequency of meetings, the generation of new ideas and the setting of research directions; and the freedom for students to take initiative; these expectations were modified as students progressed in their work.
> - Emotional intelligence expectations: related to students' empathy for the supervisor's time spent with them, their enthusiasm (intrinsic motivation), and their interpersonal skills in building relationships with others (both with the supervisor and with their fellow students); such expectations were also related to cultural background.
> - Resource expectations: related to the management of students' time and their contacts with other researchers and academics in the field..

Although the process for identifying these facets of expectations differed, they are consistent with those selected decades earlier by Moses (1985) as well as other research (e.g. Friedrich-Nel & MacKinnon, 2016; Hockey, 1994; Pole et al., 1997).

Supervisors expect their students to be independent, to produce texts and outcomes that are more than first drafts, to meet with them frequently, to be honest about their progress, to follow their advice, and to be enthusiastic about their topic (Phillips & Pugh, 2012). For their part, students expect supervisors to read their work in a timely manner, to be available when needed, to be friendly, open and supportive, to be constructively critical, to have a good knowledge of the research area, to organise meetings so that the exchange of ideas is relatively easy, to be sufficiently interested in their research, to direct the student to additional information, and to help them develop their academic role (Phillips & Pugh, 2012).

Progress monitoring

A schedule for the frequency of student-supervisor communication and meetings should be maintained, as communication problems may arise, particularly in the case of part-time students, students working outside the university, or where there is frequent contact between student and supervisor in general (Eley & Jennings, 2005; Seagram et al., 1998).

Research has shown that the frequency of supervision is related to the student's overall satisfaction with the support they receive, while the loss of contact and interaction with the supervisor could lead to the discontinuation or non-completion of the dissertation (Phillips & Pugh, 2012; Pyhältö et al., 2015). A useful method of monitoring the student's progress is to establish an agreement on the frequency of meetings. For example, a meeting every four to eight weeks at the beginning of the programme, depending on the existing needs, while recording these needs and progress (Eley & Jennings, 2005; Phillips & Pugh, 2012).

Despite the importance of the frequency of supervision meetings, issues of quality and effectiveness of these meetings (e.g. adequate preparation, attention and problem solving by the supervisor) are very important, especially when the frequency of meetings is reduced (Heath, 2002). Prior to the meeting, the supervisor should take time to read any materials the student may have received, prepare questions to ask the student and identify any relevant issues that may exist (Phillips & Pugh, 2012).

Feedback and assessment

A sensitive but very important part of supervision is not only the provision of criticism and feedback, but also the manner in which it is given, so that it is effective. It has been documented that: (1) harsh feedback can lead to frustration and disappointment, and a reduction in student motivation has been documented, and (2) praise is often neglected (Phillips & Pugh, 2012). This can lead to student discouragement and loss of confidence. Feedback is effective if it teaches students to evaluate their work and become independent researchers. In fact, it has been found that special attention should be paid to feedback in cases where it is not possible to establish a friendly and supportive relationship between supervisor and student (de Kleijn et al., 2014). Phillips and Pugh (2012) suggest some ways to make feedback effective:

> ➤ emphasise that the purpose of the feedback is to achieve progress,

- provide initial positive feedback on the progress of the work, highlighting strengths and improvements made since the last time,
- keep a balance between praise and criticism,
- avoid personal criticism,
- give feedback on the current work without reference to previous versions, as this could undermine the student's self-confidence,
- present feedback clearly, depending on where the student is,
- pay attention to what students say in response to feedback and respond to these comments,
- conclude a supervision session by reviewing/summarising the points discussed.

Helping students cope with challenges

When difficulties and frustrations arise during the research process, the support of the supervisor is important. The supervisor should be able to guide the student on how to proceed, taking into account the possible existence of other factors that may influence the student's progress (Eley & Jennings, 2005).

Developing student's skills as a researcher

In recent years, there has been much discussion about the development of transversal skills in the context of doctoral studies, i.e. skills that can be used beyond the university context (Gilbert et al., 2004). There is pressure from stakeholders outside the university and the labour market to equip doctoral students with such skills and abilities with the prospect of a better professional future (Gilbert et al., 2004; Mowbray & Halse, 2010). In a related study (Gilbert et al., 2004), students themselves identified important skills such as oral presentation techniques, research methodology, planning and scheduling, academic writing, time management, innovation and creativity, initiative and flexibility, CV writing, career planning, interviewing techniques, etc. However, students felt that they had only acquired, or expected to acquire, presentation skills during their studies (Gilbert et al., 2004).

Why it is important

The supervision process is a complex one, requiring a significant commitment of time and energy from both the supervisor and the student. Based on what we know so far from relevant research, it seems that there is no single formula for the relationship between supervisor and student. It depends on the characteristics of the people involved, the different ways in which knowledge is advanced in the disciplines, and the different demands that students have to meet in the field they are working in. However, there are two aspects to be considered when developing a 'best practice' model for the supervision of Masters and PhD students.

- o The first dimension concerns creativity and involves supervision as a process open to negotiation and change. Thus, the roles expected and assumed by

students and supervisors (as guide, task manager or 'critical' friend) structure the relationship and the strategies for supervision.

- o The second dimension of supervision concerns the mechanisms that ensure that the student makes good progress towards completion. In this respect, the literature on supervision shows that ethical, technical and methodological problems can be minimised or avoided if all participants in the relationship try to enter it with clear expectations of their respective roles and an awareness of the rules governing their interactions.

Therefore, the supervisor must be careful to work explicitly with students to define mutual expectations, responsibilities and benefits of working together.

Reflect on your teaching practices

Some questions to consider in relation to your supervisory work with your students:

- ➤ What do you think are the most important and least important responsibilities you have as a supervisor?
- ➤ What is your supervisory style?
- ➤ How does the way you relate to people in general affect your supervisory style?
- ➤ Do you discuss expectations of your students in relation to their academic work? Have you discussed ways of dealing with non-compliance?
- ➤ Do you see the supervisory process as an educational process? Do you take a teaching approach?
- ➤ Do you discuss with your student(s) problems related to their academic work or other problems that may be related to the outcome of their work?
- ➤ Do you feel that you have created a climate in which there is general agreement about what each student you supervise should be doing, and in which these agreements are critically reviewed if progress is not being made?
- ➤ Have you considered or looked for ways to support your students in their academic careers (e.g. by presenting at conferences, discussing their research with other experts in their field from other institutions, submitting papers to journals, etc.)?

Useful links

1. SKILLS FORGE https://skillsforge.com/about-us/about-skillsforge/
2. Ερωτηματολόγιο για την αλληλεπίδραση επιβλέποντος- διδακτορικού φοιτητή (Mainhard et al., 2009) https://link.springer.com/article/10.1007/s10734-009-9199-8
3. Ερωτηματολόγιο αυτοαξιολόγησης και θέματα για συζήτηση σχετικά με την πρακτική εποπτείας διδακτορικών σπουδών (Phillips & Pugh, 2012: 247)

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The aim of the toolkit is, on the one hand, to highlight in a simple way those practices that view learning as a continuous, active process of understanding the world, constructing meaning, acquiring new knowledge and applying knowledge in everyday life and, on the other, to guide Higher Education teaching staff in reflecting on their pedagogical practices.