# Handbook of STARS EU Innovative Learning and Teaching

Deliverable 3.3

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# Introduction

STARS EU is a strategic alliance between nine European universities focused on promoting educational innovation and research through transnational and interdisciplinary collaboration. The main objective is to prepare students for the challenges of the global labour market by aligning academic practices with aims such as the United Nations' Sustainable Development Goals.

As part of the objectives of Work Package 3 of STARS EU, a series of methodological proposals have been developed to promote teaching innovation in these programs. The following is an overview of the currently used teaching methods of the partner universities as well as a methodological guide that offers specific recommendations for designing and implementing innovative strategies in teaching, centred on collaborative learning, interdisciplinarity, and educational flexibility.

# Participating Universities

1. Polytechnic Institute Bragança (Portugal)
2. University West (Sweden)
3. Universidad de La Laguna (Spain)
4. Cracow University of Technology (Poland)
5. University Aleksander Moisiu-Durrës (Albania)
6. Silesian University in Opava (Czech Republic)
7. Hochschule Bremen (Germany)
8. Université de Franche-Comté (France)
9. Hanze University of Applied Sciences (Netherlands)

# Results of the Institutional Analysis

A questionnaire was developed with the main objective of collecting key information on the teaching innovation processes in the participating universities of STARS EU, focusing on innovation leaders, vice-rectors or deans of study. The goal was to capture the institutional perspective regarding the political actions necessary to promote educational innovation.

The dimensions addressed included:

- Identification Data
- Innovation Strategies and Policies
- Implementation of Innovations
- Institutional Support
- Use of Technology

This information helped guide the recommendations and teaching innovation policies that are included in the guide presented below.

## 1. Identification Data

Basic data were collected from the respondents, including the position of the informant within the institution. Most of the responses came from those responsible for teaching innovation or those directly involved in teaching. This ensured that key informants who have the capacity to influence educational policies were part of the study. All institutions participating in STARS EU were represented in this questionnaire.

Position at the university:
11 respuestas
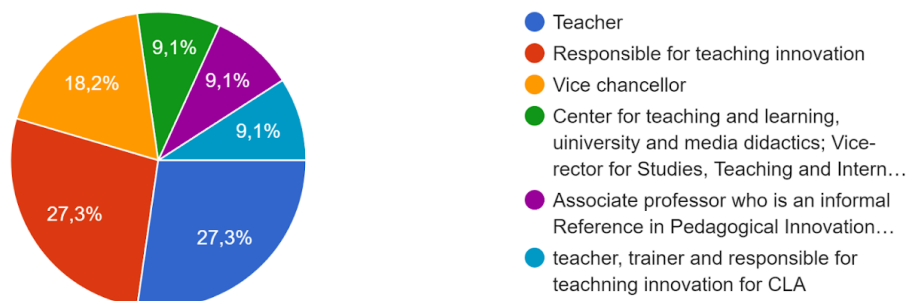


- Teacher
- Responsible for teaching innovation
- Vice chancellor
- Center for teaching and learning, uiniversity and media didactics; Vice-rector for Studies, Teaching and Intern…
- Associate professor who is an informal Reference in Pedagogical Innovation…
- teacher, trainer and responsible for teachning innovation for CLA

## Name of the institution:

11 respuestas
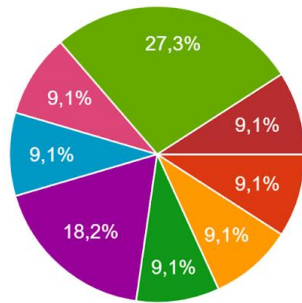


- ● Hanze University of Applied Sciences
- ● Universidad de La Laguna
- ● University West
- ● Cracow University of Technology
- ● Silesian University in Opava
- ● Instituto Politécnico de Braganca
- ● HSB
- ● Universite de Franche-Comte
- ● University Aleksander Moisiu-Durrés

## 2. Innovation Strategies and Policies

The current teaching innovation policies implemented in the participating institutions were explored. The results show that:

Most universities have established formal strategies to promote educational innovation, although the developmental level of these strategies varies.

Are there institutional policies at your university that promote educational innovation?
11 respuestas
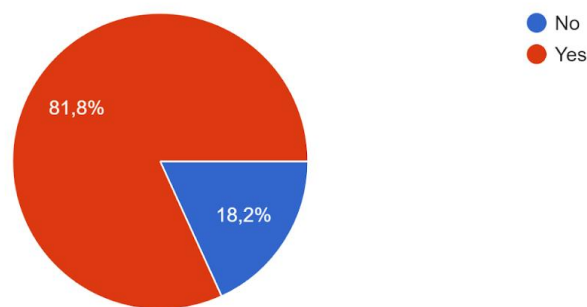


Some institutions are in the early stages of defining their policies, while others already have consolidated programs that promote digital and pedagogical transformation.

Continuous teacher training, the implementation of new technologies, and inter-university collaboration stand out as the pillars of innovation policies in most institutions.

What is your institution's strategic approach to innovation in teaching?
11 respuestas
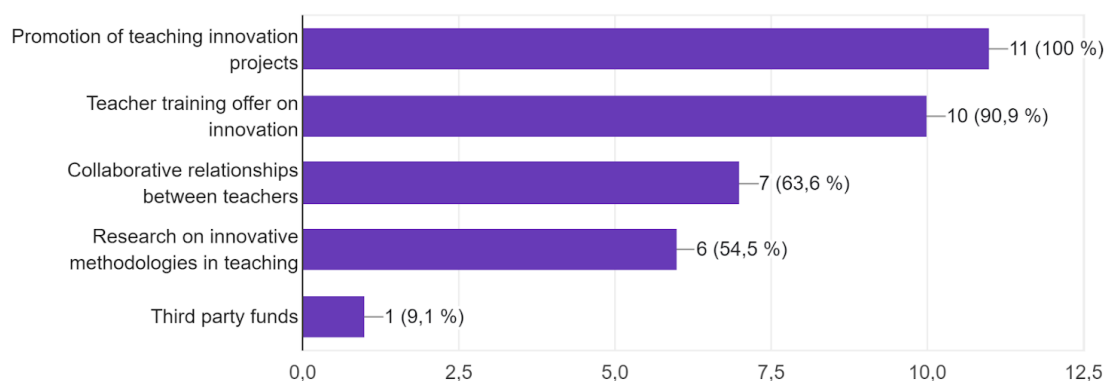
## 1. Polytechnic Institute Bragança (Portugal)

The Polytechnic Institute Bragança (IPB) has a strategic plan for 2022-2026, positioning the institution as an international reference in teaching innovation. This plan is based on solving real-world problems through co-creation ecosystems, aligning its educational approach with sustainable development goals and the demands of the future labour market.

## 2. University West (Sweden)

University West promotes innovation through a competency development centre for teaching staff. This centre focuses on the continuous updating of pedagogical skills, fostering collaborative learning and strategic partnerships. The university also offers ongoing training programs to ensure that teachers are prepared to implement new methodologies.

## 3. Universidad de La Laguna (Spain)

The Universidad de La Laguna, through its Vice-Rectorate of Teaching, promotes educational innovation and research projects. It also collaborates with other universities to offer training programs focused on pedagogical innovation. The Vice-Rectorate of Research also supports initiatives in areas related to education.

## 4. Cracow University of Technology (Poland)

Cracow University of Technology adopts an open approach to innovation. The university has several units dedicated to supporting teachers in the implementation of new technologies in their courses, such as the Centre for Electronic Education and the Future Lab. These units promote innovation through the use of advanced technological methods and tools.

## 5. University Aleksander Moisiu-Durrës (Albania)

University Aleksandër Moisiu-Durrës (UAMD) is guided by the principles of academic freedom, institutional autonomy, quality, and integrity. The university focuses on training specialists who respond to the needs of both the national and international labour market, while also promoting the development of sustainable knowledge. It encourages academic growth and pedagogical innovation through collaboration among academic staff.

## 6. Silesian University in Opava (Czech Republic)

In the last three years, the Silesian University in Opava (SUO) has focused on improving curriculum design and training teachers to teach not only knowledge but also to support individual opinion-making and discussion skills. The university has implemented a pedagogical innovation learning community, which has transformed into a year-long training program to enhance teaching skills. Additionally, they have worked on projects to remove systemic barriers that hinder innovation and organize seminars and workshops on innovative pedagogy.

## 7. Université de Franche-Comté (France)

The Université de Franche-Comté (UFC) has promoted various educational innovation projects. Although not all aspects of its institutional vision are fully defined, projects that foster pedagogical innovation through teacher training and project calls are encouraged. Collaboration between departments and the creation of international networks are key strategies to improve the quality of teaching at the institution.

## 8. Hochschule Bremen (Germany)

Hochschule Bremen (HSB) supports the development of innovative teaching and learning concepts through its Centre for Teaching and Learning. The university also offers an annual budget for innovative educational formats with an international focus, as well as a reduction of teaching obligations for those who implement these methodologies. HSB promotes internationalisation, flexibility, and innovation of teaching content.

## 9. Hanze University of Applied Sciences (Netherlands)

Hanze University of Applied Sciences (Hanze) focuses on pedagogical innovation by combining education with applied research and entrepreneurship. The university promotes a challenge-based learning approach, which allows students to work on real-world problems in collaboration with companies and organisations. Hanze is also committed to sustainability and social responsibility, integrating these values into its educational strategies.

# 3. Implementation of Innovations

This section evaluated the degree of implementation of teaching innovations in the universities. Most of the universities have begun to apply innovative methodologies such as Problem-Based Learning (PBL), gamification or the flipped classroom. A brief description was provided to the participants to help them understand each of the proposed methodologies.

- **Learning Analytics in Education:** Exploring strategies to collect and analyse data on student engagement, performance and learning outcomes to improve teaching practices.
- **Active Learning:** Benefits, implementation techniques and best practices to promote student-centred teaching.
- **Adaptive Learning:** Personalized teaching that adjusts content based on student progress.
- **Problem-Based Learning:** Students solve practical problems to learn key concepts.
- **Challenge-Based Learning:** Identification and analysis of specific problems through critical thinking, collaboration, creativity, and effective communication.
- **Project-Based Learning:** Students engage in projects that combine theoretical and practical work to apply their knowledge to real-world situations.
- **Work-Integrated Learning:** Integrating real-world work experiences into the curriculum, providing students with opportunities to apply their knowledge and skills in professional settings.
- **Slow Learning:** Introduction of strategies vital for finding the right pace and techniques, providing time for experimentation and dialogue. It helps improve focus and conscious learning.
- **Technology-Enhanced Learning** (Miro, Jamboard, Mentimeter, Kahoot, Chat GPT, Google Edu Tools, etc.): Designing learning activities with digital tools, planned collaboration, and fostering creativity and communication skills.
- **Multidisciplinary Learning:** Highlighting interdependencies and connections between subjects from different perspectives, establishing links between various areas of knowledge.
- **Flipped Classroom:** Strategies to introduce learning material before class, encouraging peer discussion and problem-solving activities during classroom time.
- **Design Thinking in Education:** Applying design principles and processes to foster creative problem-solving, innovation, and collaboration in the educational context.
- **E-assessment:** Pedagogical design of exams, development of good tasks, and examples of technical implementation.
- **Inclusive Learning Environments:** Creating a welcoming and supportive environment that values diversity, promotes equitable access, and fosters the success of all students

by recognizing and respecting their diverse backgrounds, experiences, abilities, and identities.

- **Gamification:** Using game elements to engage students in learning activities. Applying game design elements in the educational setting, such as classroom avatars, achievement badges, classroom missions, and serious games to promote learning.
- **Competency-Based Learning Projects:** Initiatives for project-based methodologies in exploring and implementing a competency-based education model. Clarification of conventional learning models versus competency-based education.
- **MOOCs and Educational Videos:** Integration of MOOCs (Massive Open Online Courses) into curricula as an accessible and flexible way to learn new skills. Effective use of videos as an educational tool, engaging students in learning activities with videos.
- **Virtual/Augmented Reality:** Using immersive technologies for engaging educational experiences.

During the last two years, the institutions participating in the STARS EU project have implemented a series of innovative methodologies aimed at improving teaching and learning. In this context, universities have incorporated student-centred pedagogical approaches (90%), which aim to foster student engagement through practical and collaborative techniques. This methodology has been complemented by challenge-based learning, a strategy that invites students to analyse and solve specific problems using critical thinking, collaboration, creativity, and effective communication.

Additionally, universities have promoted the creation of inclusive learning environments, ensuring that classrooms are welcoming spaces that value diversity and provide equitable access to educational resources. This approach ensures that all students, regardless of their background, abilities, or identities, can thrive academically.

Another highlighted methodology is flipped classroom, which introduces study materials before class so that students can use class time for peer discussions and practical problem-solving activities. This technique not only facilitates a better understanding of content but also encourages teamwork and interaction.

The use of technology-enhanced learning (100%) has been a key point in many of these institutions. Tools like Miro, Jamboard, Mentimeter, Kahoot, and Chat GPT, among others, have been used to design digital learning activities that promote creativity and communication skills. This approach has enabled students and professors to collaborate more effectively and adapt to new digital educational environments.

In line with labour market trends, several universities have implemented work-integrated learning, which connects students with real-world work experiences. This methodology allows

students to apply the knowledge they have acquired in a professional setting, providing valuable practical experience that strengthens professional skills.

There has also been a push for multidisciplinary learning, which emphasizes the interdependencies between different areas of knowledge. This approach allows students to establish connections between various disciplines, enhancing their ability to tackle complex problems from multiple perspectives.

What innovative methodologies has your institution implemented in the past two years?
11 respuestas

| Methodology | Value |
|---|---|
| Active Learning: Benefits, im... | 10 (90,9 %) |
| Challenge-Based Learning: I... | 8 (72,7 %) |
| Inclusive Learning Environm... | 9 (81,8 %) |
| Flipped Learning: Strategies... | 8 (72,7 %) |
| Technology-Enhanced Learn... | 11 (100 %) |
| Work Integrated Learning: In... | 7 (63,6 %) |
| Multidisciplinary Learning: E... | 4 (36,4 %) |
| Design Thinking in Educatio... | 9 (81,8 %) |
| Gamification: Gamification fo... | 9 (81,8 %) |
| MOOCs and Educational Vid... | 9 (81,8 %) |
| Learning Analytics in Educati... | 6 (54,5 %) |
| Slow Learning: Introducing li... | 1 (9,1 %) |
| E-Assessment: Didactic exa... | 4 (36,4 %) |
| Project methodology in the s... | 4 (36,4 %) |
| Problem-based learning: Stu... | 9 (81,8 %) |
| Gamification: Applying game... | 9 (81,8 %) |
| Virtual/augmented reality: U... | 8 (72,7 %) |
| Adaptive learning: Personali... | 6 (54,5 %) |
| Work integrated learning; Hy... | 1 (9,1 %) |

In the analysis of the main challenges faced by universities in implementing new educational methodologies, several common obstacles emerged among the participating universities.

One of the most mentioned challenges is resistance to change. Institutions like the Instituto Politécnico de Bragança, University West, Universidad de La Laguna, and Cracow University of Technology noted that both teachers and other members of the educational community may show reluctance to adopt new methodologies. This resistance can stem from attachment to traditional teaching methods and a lack of familiarity with innovative approaches.

Lack of adequate training was also highlighted. The universities stressed the need to offer continuous and up-to-date training so that teachers can effectively adapt to new technologies and methodologies.

Budgetary limitations were mentioned as another major challenge. The lack of adequate funds can restrict the implementation of new technologies and pedagogical resources, making it difficult to adopt innovative methodologies on a widespread basis.

## 4. Institutional Support

A common approach mentioned by institutions such as the Instituto Politécnico de Bragança, University West, Universidad de La Laguna, and Cracow University of Technology is the offering of continuous education programs. These programs provide teachers with the opportunity to update their pedagogical and technical knowledge, preparing them to better integrate new methodologies into their teaching.

In addition, many universities offer technical and pedagogical support. This support is key to enabling teachers to effectively implement emerging technologies and innovative methodologies in the classroom. Institutions like University Aleksander Moisiu-Durrës also highlight the importance of having specialized teams that provide technical assistance and guide teachers in using new educational tools. Only two of the universities offer financial incentives to their faculty for engaging in teaching innovation processes.

How are teachers supported in adopting new methodologies?
11 respuestas

| Category | Value |
|---|---|
| Continuing education programs | 9 (81,8 %) |
| Technical and pedagogical support | 10 (90,9 %) |
| Economic incentives | 2 (18,2 %) |
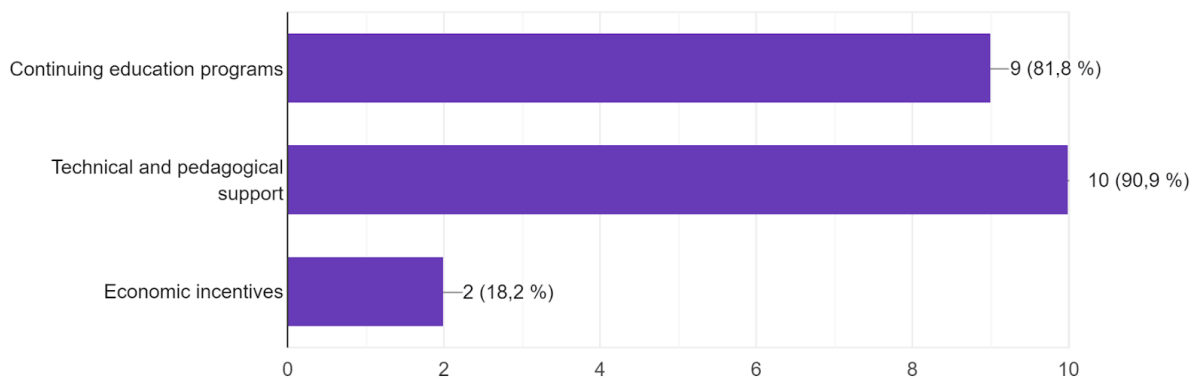
# 5. Use of Technology

The use of technology in teaching and learning processes has been widely recognized as a key tool for innovation. Most universities use platforms like Moodle and Blackboard to facilitate hybrid and online teaching and rely on ZOOM or Microsoft 365 as their main software for teaching.

Which e-learning platform do you use at your university?

11 respuestas



- Moodle
- Blackboard
- Dokeos
- Google Classroom
- ILIAS
- Canvas
- IS SU
- MS Teams
- Sakai
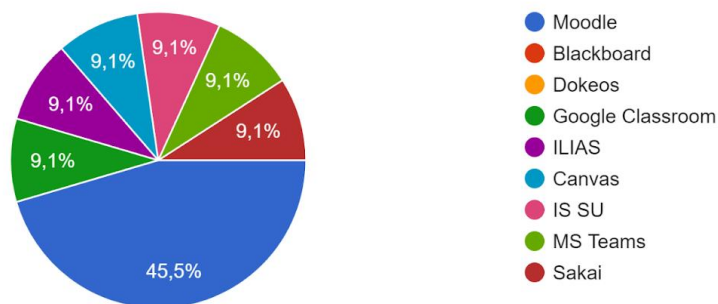
What applications and software are available to teachers for the development of e-learning processes?

11 respuestas



| Application | Value |
|---|---|
| Google for Education | 2 (18,2 %) |
| Microsoft 365 | 10 (90,9 %) |
| Zoom | 7 (63,6 %) |
| Turnitin | 2 (18,2 %) |
| Collaboard, Limesurvey, ILIAS | 1 (9,1 %) |
| https://www.hv.se/en/meet-univ… | 1 (9,1 %) |
| Jupyter | 1 (9,1 %) |
| Compilatio and Wooclap | 1 (9,1 %) |
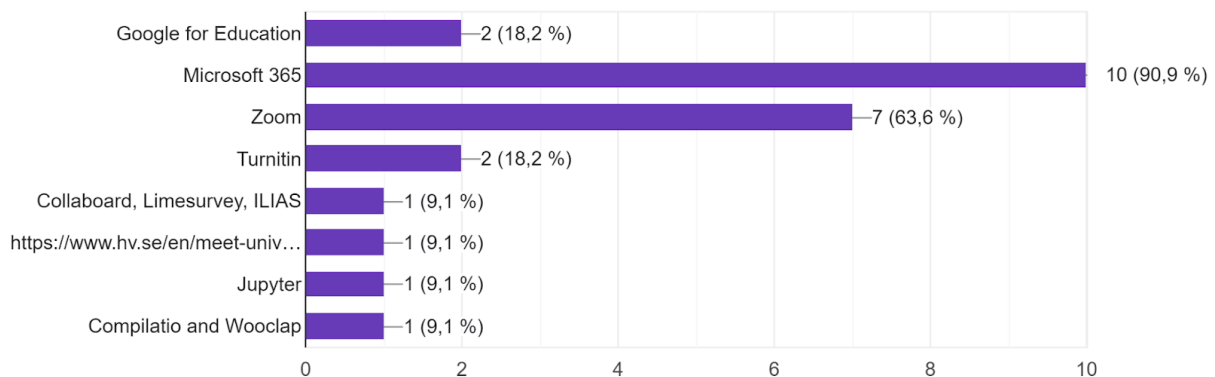
Opportunities for improving the use of digital tools in the classroom were identified, especially regarding online assessments and the creation of interactive resources. However, some institutions expressed the need for greater technological integration in academic programs, as well as specific training in the use of new educational technologies.

# Conclusion

Participants suggested several improvements to policies aimed at educational innovation in the STARS EU institutions, ranging from enhancing teachers' skills to streamlining decision-making processes and increasing transparency of information.

Several institutions indicated that it is important for **processes to be quicker** and for the **criteria guiding decisions**, such as the selection of specific pedagogical software, **to be clear and accessible to the entire academic community**. Additionally, the strategic support of senior university management was emphasized as crucial to the success of innovation policies.

Another recurring suggestion was the **integration of theory and practice** in all learning activities, both for students and teachers. Universities highlighted the importance of promoting the **continuous development of teaching competencies**, suggesting that teaching skills should be valued not only for accumulated experience but also for the demonstrated pedagogical merits in the classroom. This approach would encourage continuous improvement in teaching and foster the adoption of new methodologies.

Furthermore, some institutions proposed **the creation of specific grants for educational research**, which would allow teachers to explore and implement new methodologies with greater backing. They also suggested **structuring lifelong professional development programs for teachers**, providing them with the tools necessary to stay up to date in a constantly changing educational environment.

**Financial support** was also mentioned as a critical need. Several participants suggested the hiring of instructional designers with teaching experience, as well as the **allocation of more funds for the creation of pedagogical projects in collaboration with teachers**. The lack of time and adequate resources has been a significant obstacle for some teachers, making it a priority to increase opportunities for educators to dedicate more time to developing their teaching practices.

Another highlighted topic was the **creation of interdisciplinary programs that promote collaboration between different faculties**. For example, it was suggested that programs be developed that combine courses on digital transition with areas such as the arts and creative industries. This approach would not only offer students a more comprehensive learning experience but also stimulate innovative outcomes by connecting disciplines that are traditionally taught separately.

Additionally, the **need to establish research hubs that bring together experts from various fields to work on common-interest topics**, such as circular economy or healthy aging, was emphasized. These hubs would facilitate knowledge creation and allow institutions to stay at the forefront of scientific and pedagogical developments. It was also suggested to create

**advisory boards with members from key industries, ensuring that academic programs align with labour market needs**, thus improving graduates' employability.

Finally, several universities proposed **implementing financial incentives and professional recognition for teachers who engage in educational innovation**. These rewards, both monetary and professional, would act as strong incentives for teachers to commit to new teaching approaches. Moreover, it was suggested that institutions should learn from international experiences by creating think tanks, where universities can share knowledge and learn from the best practices implemented by other institutions.

# Objectives

The purpose of this guide is to provide a comprehensive set of guidelines for the implementation of innovative educational programs within the framework of the Blended Intensive Programmes (BIP). Below are the main objectives:

- **Provide clear recommendations for designing BIP programs**: This guide aims to offer precise and practical guidelines for developing BIP programs, facilitating the planning and execution process for teachers. BIP programs, which combine physical and virtual mobility, require a well-structured design that enables effective interaction between students and teachers, maximizing learning in both environments.

- **Promote methodologies focused on active and collaborative learning:** Active and collaborative learning is essential for engaging students in the educational process in a meaningful way. This guide encourages the use of pedagogical approaches such as project-based learning, problem-solving, and teamwork, which not only motivate students but also develop critical skills like analytical thinking, creativity, and cooperation.

- **Encourage the use of digital technologies and online learning platforms:** In the digital era, technological tools and online learning platforms have become indispensable for effective education. This guide advocates the adoption of digital technologies as tools to enhance learning, improving access to educational resources and facilitating interaction between teachers and students in a virtual environment. The use of collaborative platforms and digital resources that support both synchronous and asynchronous learning is promoted.

- **Offer recommendations for creating inclusive and equitable learning environments:** An inclusive learning environment is key to ensuring that all students, regardless of their abilities, backgrounds, or identities, have equal opportunities for success. The guide provides recommendations for creating an educational climate that values diversity and guarantees equitable access to educational resources. These recommendations include strategies for adapting content, teaching, and assessments to meet the diverse needs of students.

- **Provide practical examples and formative assessment models:** To facilitate the monitoring and continuous improvement of the learning process, this guide includes examples of formative assessment. These tools allow teachers to assess students' progress continuously, providing useful feedback to help them adjust their pedagogical strategies. Formative assessment models also encourage students' self-regulation, helping them identify areas for improvement throughout their learning journey.

# Innovative Teaching Methodologies

## 1. Project, Problem, and Challenge-Based Learning

### Universidad de La Laguna (Spain)

Project-based learning (PBL) and problem/challenge-based learning involve students working to solve real-world problems presented in the form of projects or challenges. This approach seeks to develop skills such as critical thinking, creativity, and collaboration.

**Phases and Work Process:**

1. Presentation of the challenge or problem: Students are presented with a real-world problem or challenge.
2. Research and planning: Students research the problem, plan their approach, and assign tasks.
3. Project development: The team implements their solution, generating products or responses to address the challenge.
4. Presentation and evaluation: The results are presented to the teacher and peers, receiving feedback and evaluating both the process and the solution.

**Digital Tools:**

- Trello or Asana: Project management (ULL)
- Padlet or Miro: Collaborative boards to organize ideas (ULL)

### Hanze University of Applied Science (Netherlands)

PBL and CBL are at the heart of several student programmes at Hanze. The idea is that this kind of programmes causes urgency, which stimulates student interest in the topic.

**Phases and Work Process:**

1. Students choose a company assignment that interests them.
2. Students work in a small group (2 or 3) on the assignment, including on average two days internship a week for a semester.
3. Students get workshops (lessons) at school about relevant topics.
4. Students work on (formative) assignments that help them to come to a qualitative end product for the company.
5. Once a week a number of student groups (5-7) come together with a lecturer (project coach) in a Community of Learners (CoL). In the CoL they share experiences, help each other, give each other "mini-lectures" about relevant topics,etc.

6. Products delivered: for instance: a (scientific) article about a technology; presentation about SWOT analysis or pitch to present a strategy.

**Digital Tools:**

- MS Teams
- tools used by the company that the students work with (differs per group)

## Instituto Politécnico de Bragança (Portugal)

Challenge-based learning involves students from different academic fields working to solve real-world or community complex problems (from companies or institutions) presented as challenges by a partner/client. This approach seeks a transdisciplinary co-creation and develops skills such as empathy, communication, critical thinking, creativity, and collaboration.

**Phases and Work Process:**

1. Team engagement and presentation of the challenge: Students organized in multidisciplinary teams are presented with a real-world challenge by the partner/client.

2. Research, explore and discover: Students research the challenge, identify stakeholders, develop a benchmark, plan their approach, and assign tasks.

3. Project development: The team ideates, develops, prototypes and tests their solutions (iterative process), generating products or responses to address the challenge.

4. Presentation and assessment: The results are presented to the partner/client, peers, facilitators, and experts, receiving feedback and assessing (360º) both the process and the solution.

**Digital Tools:**

- Discord or WhatsApp: Communication and collaboration platforms.
- Padlet or Miro Google Docs: Collaborative boards to organize ideas
- Canva and Fidma: collaborative mockup and documents

### Hochschule Bremen (Germany)

Hochschule Bremen specifically focuses on the Challenge-Based Learning approach in its courses and BIPs. A designated group of members from the Centre of Teaching and Learning (*Zentrum für Lehren und Lernen*) has recently formed to take stock of the current state of CBL at HSB explore how CBL can in future be implemented more thoroughly in the curriculum. In cooperation with IPB, the international master programme I_PaCE will feature a specific focus on CBL.

## 2. Adaptive Learning

Adaptive learning is an approach where content and activities are dynamically adjusted based on the student's progress, skills, and needs. This methodology personalizes the learning process to maximize performance.

### Universidad de La Laguna (Spain)

**Phases and Work Process:**

1. Diagnostic assessment: The student's prior knowledge and skills are evaluated.
2. Personalization of content: Platforms adapt the content according to the student's performance.
3. Monitoring and feedback: Progress is constantly monitored, and the content is adjusted according to results.
4. Final evaluation and adjustment: Overall results are evaluated to adjust the future educational plan.

**Digital Tools:**

- Knewton or Smart Sparrow: Adaptive learning platforms

## 3. Learning Analytics

### Universidad de La Laguna (Spain)

Learning analytics refers to the process of collecting, analysing, and interpreting data on student progress and behaviour to improve teaching and learning processes.

**Phases and Work Process:**

1. Data collection: Data is gathered on students' activity in digital platforms (participation, results, study time).
2. Data analysis: The data is analyzed to identify patterns and issues.
3. Feedback: The analysis provides insights for teachers to adjust their strategies.
4. Intervention: Based on the results, pedagogical decisions are made to enhance learning.

**Digital Tools:**

- Google Analytics for Education
- Moodle Analytics: Tools for educational data analysis

## Instituto Politécnico de Bragança (Portugal)

**Digital Tools:**

- Sakai Analytics for educational data analysis

# 4. Collaborative Learning

## Universidad de La Laguna (Spain)

Collaborative learning is a methodology in which students work in teams to achieve shared objectives. This approach fosters the development of social skills, teamwork, and problem-solving abilities.

**Phases and Work Process:**

1. Team formation: Students are organized into groups with common objectives.
2. Role assignment: Each team member takes on a specific role (coordinator, editor, etc.).
3. Collaborative development: Students work together to solve problems or complete tasks.
4. Presentation and evaluation: Results are presented, and feedback is received from both the teacher and peers.

**Digital Tools:**

- Microsoft Teams, Slack: Communication and collaboration platforms
- Google Docs, Trello, Asana: Collaborative work and project management tools

### Hanze University of Applied Science (Netherlands)

Hanze uses this all throughout their current education. Group work is the basis, with regular individual deliverables to check individual level of knowledge and insight in the matter.

### Instituto Politécnico de Bragança (Portugal)

**Digital Tools:**

- Discord for communication and collaboration

## 5. Flipped Classroom

### Universidad de La Laguna (Spain)

The flipped classroom is an approach where students study theoretical content before attending class, using class time to discuss, apply, and solve problems related to what they learned beforehand.

**Phases and Work Process:**

1. Pre-class preparation: Students access materials before the class (videos, readings).
2. In-class discussion: During the class, students work on practical activities and solve doubts.
3. Application: Students apply the knowledge through exercises, problems, or projects.
4. Evaluation and feedback: The teacher evaluates participation and progress, offering feedback.

**Digital Tools:**

- Edpuzzle, Flipgrid: Tools to embed questions and assessments in videos
- YouTube: Platform to provide pre-class video content

### Hanze University of Applied Science (Netherlands)

Flipped Classroom is a methodology that is used within Hanze University including the steps described above.

**Digital Tools:**

- Mentimeter or Kahoot (to check individual preparation)
- Blackboard (to provide relevant materials)

### Hochschule Bremen (Germany)

Hochschule Bremen offers yearly training for teaching staff on flipped/inverted classroom. This course is open to all faculties.

## 6. Gamification

### Universidad de La Laguna (Spain)

Gamification involves applying game elements and mechanics in educational contexts to motivate students, improve their engagement, and make learning more enjoyable.

**Phases and Work Process:**

1. Definition of objectives: Clear learning goals are established, aligned with the gamified activities.
2. Game mechanics design: Elements such as points, badges, challenges, or competitions are integrated.
3. Execution: Students participate in gamified activities, earning rewards for their progress.
4. Evaluation: Learning outcomes are assessed through the gamified experience.

**Digital Tools:**

- Kahoot!, Classcraft: Platforms for gamifying the classroom
- Badgr: To award badges and rewards for progress
- Cardconjurer: To create cards

### Hanze University of Applied Science (Netherlands)

Hanze often uses gamification in their education to stimulate motivation, and to simulate real life situations.

**Examples:**

- The Fresh Connection (simulation of a production environment, students perform 4 relevant roles within their 'company', decisions made obviously lead to certain

outcomes which has a learning effect on students. There is an overall competition within a class (study year). Computer based game: one or two weeks.

- The We Energy Game (simulation of a situation in which decisions about sustainable energy within a village/city have to be made. Different roles: citizen; planet; municipality, etc.  Students have to reach a certain amount of sustainable MW of energy with an acceptable combination of sources of energy. Boardgame: about 2 hours.
- The impossible assignment: students have to generate an amount of money for a charity goal: the best idea to generate the largest amount of money wins. Competition during first week of study first year business students.
- The Management Game: several study programmes within Hanze play this game, most of them in the last year of study. Student work in groups of 5 students as 'a company'. They have to take all kinds of business decisions with (of course) consequences. They have to deal with those consequences. Overall management topics are included (Management, Finance, Law, HR, Logistics, etc). Students perform roles. The student company with the highest score wins.

## 7. Design Thinking

### Universidad de La Laguna (Spain)

Design Thinking is a problem-solving approach that encourages creativity, collaboration, and innovation. It is based on five phases: empathize, define, ideate, prototype, and test.

**Phases and Work Process:**

1. Empathize: Students research user needs.
2. Define: Clearly identify the problem to be solved.
3. Ideate: Students generate creative solutions through brainstorming.
4. Prototype: Prototypes of the proposed solutions are developed.
5. Test: The prototypes are evaluated, and the solution is improved.

**Digital Tools:**

- Miro, Jamboard: Tools for brainstorming and collaborative prototyping

### Hanze University of Applied Science (Netherlands)

Design Thinking as a method is broadly applied within Hanze. For instance, in the study program of Industrial Product Design, but as well in a BIP of students Industrial Engineering and Management this methodology is used as basis for the whole programme.

**Digital Tools:**

- MS Teams
- Padlet

### Instituto Politécnico de Bragança (Portugal)

**Digital Tools:**

- Jamboard (licensed until the end of 2024)

### Hochschule Bremen (Germany)

Hochschule Bremen offers further training for teaching staff specifically on design thinking and its basic principles with special focus on the individual teaching situations and study fields. This course is repeated each semester and open to all faculties.

## 8. Educational Videos

### Universidad de La Laguna (Spain)

Educational videos are audiovisual resources designed to explain concepts and facilitate autonomous and visual learning.

**Phases and Work Process:**

1. Script creation: The content is structured in a clear and educational manner.
2. Video production: The educational video is recorded and edited.
3. Distribution: The video is shared through digital platforms.
4. Evaluation: Students are evaluated through activities or questions based on the video.

**Digital Tools:**

- YouTube, Edpuzzle: To create and share videos with interactive evaluations
- Camtasia, Loom: For recording and editing educational videos

Instituto Politécnico de Bragança (Portugal)

**Digital Tools:**

- ScreenPal

# 9. Interactive Educational Materials

## Universidad de La Laguna (Spain)

Interactive educational materials allow students to actively engage with the content, fostering a more dynamic and hands-on learning experience.

**Phases and Work Process:**

1. Material design: Interactive materials such as quizzes, simulations, or games are created.
2. Implementation: Students use the materials to explore the content.
3. Interaction and feedback: The materials provide immediate feedback on the student's progress.
4. Evaluation: Learning is assessed based on the interaction with the materials.

**Digital Tools:**

- H5P, Nearpod: Tools to create interactive materials
- Canva or Genially: For creating interactive online resources
- Quizlet: To create games and interactive quizzes

# 10. Virtual/Augmented Reality

## Universidad de La Laguna (Spain)

Virtual reality (VR) and augmented reality (AR) are technologies that create immersive experiences where students can interact with simulated environments (VR) or virtual elements overlaid onto the real world (AR). These technologies enhance the understanding of complex concepts and provide educational experiences that would otherwise be difficult to replicate.

**Phases and Work Process:**

1. Content selection: Educational content is chosen to be presented through virtual or augmented reality, selecting scenarios or models that will benefit learning.
2. Design of the immersive experience: The environments or simulations in which students will participate are created or selected, ensuring the interactions are educational and guided.
3. Immersive interaction: Students immerse themselves in the experience using devices like VR headsets or mobile devices to interact with augmented objects.
4. Evaluation and reflection: Reflection is carried out on the experience, and learning is assessed through interaction with virtual or augmented reality.

**Digital Tools:**

- Google Expeditions: Allows guided tours in virtual and augmented reality
- Zappar: Platform for creating augmented reality content
- CoSpaces: Tool for creating and experiencing virtual worlds and augmented reality

# 11. Inclusive Learning Environments

## Universidad de La Laguna (Spain)

Inclusive learning environments are designed to ensure that all students, regardless of their abilities, backgrounds, or identities, can participate and succeed in the learning process. These environments promote equity and accessibility, ensuring that barriers to learning are minimized or eliminated.

**Phases and Work Process:**

1. Needs diagnosis: An assessment is made of students' needs and learning styles to adapt content and resources.
2. Material adaptation: Educational materials (texts, videos, activities) are modified to be accessible to students with diverse abilities and learning styles. This may include easy-to-read resources, visual content, or transcripts.
3. Implementation of inclusive strategies: Pedagogical methods are employed to encourage the participation of all students, such as diverse group work or the use of accessible interactive tools.
4. Continuous and flexible evaluation: Evaluations are designed to adapt to the needs of each student, ensuring that everyone has the opportunity to demonstrate their learning.

**Digital Tools:**

- Immersive Reader (Microsoft): Enhances text accessibility, making reading and comprehension easier.
- Canvas: Offers an inclusive platform with accessible tools for personalizing the learning experience.
- Grammarly: Assists students with writing difficulties by providing correction suggestions.

### Hochschule Bremen (Germany)

At Hochschule Bremen, an inclusive and low-barrier learning environment is one of the key foundations of teaching. Specific project such as one dedicated to gender and diversity in teaching go hand in hand with teaching qualification. The team at the Centre of Teaching and Learning is currently working on providing students with a low-barrier version of their learning management system AULIS, an ILIAS-based system and aiding staff in rendering their courses and its material more accessible. Teacher training at the Centre of Teaching and Learning also includes courses on how to provide low-barrier PDF- and Word documents as well as special sensitivity trainings on how to support students with care work or disabilities.

## 12.   Formative Assessment

### Universidad de La Laguna (Spain)

Formative assessment is a continuous evaluation approach carried out during the learning process with the goal of monitoring student progress and providing feedback to help improve their performance. Unlike summative assessment, formative assessment does not focus on a final grade but on the student's growth and development throughout the process.

**Phases and Work Process:**

1. Definition of assessment criteria: Clear indicators of progress are established, which the students are aware of from the start, to guide their learning process.
2. Continuous assessment: Throughout the learning process, formative activities are carried out, such as quizzes, tasks, projects, or debates, which allow the teacher to measure progress.
3. Feedback: Students receive frequent and detailed feedback to adjust their study strategies and improve their understanding of the content.

4. Review and adjustment: Students reflect on the feedback received and adjust their work or approach, using the teacher's guidance to improve before a final evaluation.

**Digital Tools:**

- Google Classroom: For submitting tasks and providing feedback
- Quizizz or Socrative: To create quick quizzes and obtain real-time data on students' progress
- Edpuzzle: Embeds assessments within educational videos, allowing teachers to check students' understanding as they progress through the content

## Hanze University of Applied Science (Netherlands)

Within Hanze we definitely work with formative assessment. In several curricula Challenge Based Learning is applied and a combination of summative and formative assessment is applied.

**Digital Tools:**

- eJournal (portfolio tool)

# 13. Other Digital Tools

## Universidad de La Laguna (Spain)

The University of La Laguna (ULL) has a catalogue of applications for teaching, which can serve as a reference for teachers. This catalogue has been developed within the framework of the Unidigital Projects with funding aimed at promoting the digital transformation of universities (ULL DocApp). Additionally, the Information and Communications Technology Service offers licenses for the entire university community.

It is important to consider the possibilities of LMS (Learning Management System) platforms from other universities for enhanced digital learning.

- Mentimeter: A tool for creating interactive presentations, allowing students to participate in real-time through polls, quizzes, word clouds, and more
- Chat GPT, Gemini or Copilot: Artificial intelligence tools that can assist in generating content, brainstorming ideas, and providing quick answers or summaries. It can be used to support both teaching and learning activities

**Development of a Student Guide (ULL)**

Example of a [guide for students](#) in online programs at Universidad de La Laguna.

**Virtual Classroom Templates (ULL)**

Template by topic: https://campusvirtual.ull.es/formacion/course/view.php?id=4811

Template by didactic element:
https://campusvirtual.ull.es/formacion/course/view.php?id=4871

Templates by week: https://campusvirtual.ull.es/formacion/course/view.php?id=4873

Interactive template: https://campusvirtual.ull.es/formacion/course/view.php?id=4874

## Hanze University of Applied Science (Netherlands)

Digital tools are of course more and more important in the daily practice at Hanze University. Teachers use Blackboard, Osiris and a lot of other tools. As of next year, Bright Space and a new portfolio tool Portflow will be implemented as well.

Rules and regulations are being designed for the use of AI tools like OpenAI (ChatGPT), Gemini and Copilot.

## University West (Sweden)

- Zoom (digital meetings)
- Padlet (digital collaboration surface)
- HV Play (streaming media service)
- PowerPoint (presentation tool with recording possibilities)
- Canvas (Learning Management System)
- Inspera Assessment (digital sit-in exams)
- Wirecast (recording films)
- Lightboard Studio (recording films in studio with see-through whiteboard screen)

## Hochschule Bremen (Germany)

Hochschule Bremen offers an extensive catalogue of didactics support and material for teaching staff through its platform AULIS. This ranges from a catalogue of didactic methods, technical support, advise on diversity and inclusion to courses for newly appointed teaching staff.

- Zoom
- Collaboard

- E-assessments via AULIS
- Limesurvey
- EVASYS+ for evaluation of courses

# Recommendations on Artificial Intelligence

## Universidad de La Laguna (Spain)

**What is Artificial Intelligence (AI)?**

Artificial Intelligence (AI) is a technology that allows machines to perform tasks that usually require human intelligence, such as decision-making, learning, and language processing.

**Institutional Aspects**

The University of La Laguna (ULL) promotes the use of AI in teaching through the Educational Innovation and Transfer Projects and Educational Innovation Projects. During the current academic year, several training offers have been carried out for teachers, focused on the practical use of AI tools. It is expected that these offers will continue to meet the needs of the entire university community.

**Guide for Professors**

1. Educate yourself and reflect on the technical, methodological, and ethical use of AI.
2. Debate the use of AI within your academic environment: Department, School, and Faculty.
3. Adapt your courses to integrate AI tools, enhancing content, activities, and assessments.
4. Share your experiences and best practices with other faculty members.
5. Select the best AI tools to optimize your teaching.
6. Increase your teaching productivity by using AI to create and update materials, summaries, and formats.
7. Adapt your methodology to integrate AI into your teaching and assessment strategies.
8. Motivate your students by demonstrating the benefits of using AI appropriately.
9. Critically evaluate the capabilities offered by AI to foster critical thinking in students.
10. Promote the ethical use of AI, avoiding purely reproductive tasks and ensuring the authenticity of students' work.

**Guide for Students**

1. Educate yourself and reflect on the ethical and technical use of AI.
2. Debate its use with your peers and professors.
3. Use AI to enhance your learning but follow the professor's guidelines.
4. Follow the instructions regarding AI use in your courses.
5. Use AI as a support tool but do not rely on it to complete tasks unless permitted.
6. Validate and verify information generated by AI as it may contain errors.
7. Include proper citations for any content obtained through AI in your assignments.
8. Declare your use of AI in your work, specifying how and to what extent it was used.
9. Use AI to optimize your time, summarize documents, or seek inspiration, but always critically.
10. Protect your academic integrity by avoiding improper use of AI as it may have serious consequences such as suspension from evaluations.

## Hanze University of Applied Science (Netherlands)

Hanze provides online guidelines for staff as well as for students:

"Disclaimer: this document contains information regarding generative AI (Gen-AI). Gen-AI refers to artificial intelligence systems with the ability to generate intricate data such as text, images, and music in a manner resembling human creativity. In the following text, we explore the definition of Gen-AI, examine responsible usage practices, and outline the guidelines to be observed.

Given the fast-paced changes and new insights of Gen-AI, this document will undergo regular revisions to ensure it remains up-to-date and informative. The current text represents the state of affairs in January 2024. If you have relevant input or information for this context, please share it by reporting to: ai@org.hanze.nl. This email address is actively monitored by colleagues from the Staff Office Education and Applied research and Staff Office Computing & Information Services, ensuring prompt attention from the appropriate expert regarding your input."

## Hochschule Bremen (Germany)

The Centre of Teaching and Learning at Hochschule Bremen is currently working on its own project relating to AI in teaching and studying. A series of digital lectures provides teaching staff with information on the potentials of AI, its application in teaching and in research.

## Silesian University in Opava (Czech Republic)

**Statement on the use of artificial intelligence (AI): Only humans have conscience**

The use of AI tools is becoming one of the digital competencies of tomorrow and, given the right conditions, this technology can support educational flexibility, the introduction of innovative teaching methods and the development of critical and systems thinking. It can also significantly help students with specific needs. Rather than focusing on information gathering and processing, where AI is no match, we can now focus on cultivating emotional and social intelligence, developing creativity, critical thinking, teamwork, moral responsibility, and last but not least, self-education.

While Silesian University supports the use of AI, we are aware of the potential pitfalls and risks associated with this field. For this reason, we are preparing lectures, seminars and courses where we will not only introduce interested educators and students to the subject, but also discuss with them the questions of how AI will change teaching, testing and learning processes, how it can promote or destroy creativity, critical thinking and authenticity, and last but not least, how to use AI tools for scientific research or artistic purposes. SU is also setting up an AI Advisory Group to address copyright issues.

### Recommendations for students

- Respect the instructions of your lecturers to set rules for the use of AI in teaching individual subjects and in the development of assignments or projects.
- When using AI for any form of creative work, mention AI in the list of sources used or in the notes. Include other uses, such as text editing, in the note.
- Always check all AI-generated sources for accuracy. AI often makes up its own sources or is unable to assess their relevance.
- Be careful when copying and distributing content generated by ChatGPT. By using AI tools, you agree to their terms of use.
- Rather, use AI as a source of inspiration and a basis for discussion.

### Recommendations for teachers

- Be open to new technologies. Explore new methods that can be used in teaching.
- Set clear rules for using and citing AI tools in the courses you teach.
- Consider replacing some forms of written work with oral or other forms of testing.