

Practical teaching methods

Project method

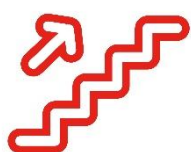


The project method involves students working independently (either individually or in groups) with the aim of proposing, and optionally also implementing, a project. The project assumptions can be formulated by the teacher independently or in collaboration with the students. It is worth ensuring that projects are, as far as possible, interdisciplinary (and therefore cover various subject areas familiar to the students or integrate different modules within the degree programme) and give students considerable scope for autonomy in defining, for example, objectives, activities or methods.

Projects may take the following forms:

- Research-based – Students collect, organise and analyse information relating to a particular topic. The results of their work are discussed with the Teacher and, optionally, with other Students
- Local – these are activities of a specific duration, single-time, but intended to produce a lasting effect. The need for such activities arises from identifying the needs of the local community
- Technical – these result in the creation of relevant documentation or artefacts.

Projects may also vary in terms of structure – ranging from those where the academic teacher sets out to the students the scope of the project to be carried out and the results to be achieved (whilst it is up to the students to define the objectives, forms and method of implementation, and to prepare an appropriate presentation) to those where students can decide independently on most aspects (topic, objectives, scope, method of implementation, outcomes, presentation).



The project-based approach is implemented in the following steps:

1. Students select a topic or problem, taking into account their abilities, needs, interests, etc.
2. Formulation of objectives – a general objective (strategic, common to every project group)
3. and operational objectives (related to activities, including in relation to learning outcomes).
4. Drawing up arrangements regarding the implementation of projects, their format, methods of consultation with the teacher, deadlines, etc.
5. Identifying the necessary resources, finalising the topic, and preparing the programme and timetable.
6. Carrying out the activities and preparing a report.
7. Presentation of the project.



An Academic Teacher's tasks include outlining the topics that may be covered, establishing a set of rules either independently or in collaboration with students, preparing potential teaching resources (e.g. forms to be completed, instructions) and specifying assessment criteria. Furthermore, it is important to systematically monitor the teams' activities, provide subject-matter support and assist in resolving any conflicts that may arise. The teacher's task is also to develop a plan for the structure of the sessions and define their role in each session (e.g. introductory briefings, ongoing consultations, assessment of work outcomes, etc.).



The project-based approach teaches students to use a variety of information sources and to manage information, guiding them from data collection through to report preparation; it fosters curiosity and demonstrates the practical application of knowledge, whilst teaching planning and systematic work in teams.

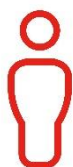
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Problem Based Learning

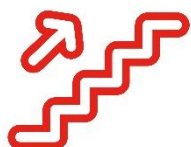


The Problem-Based Learning method involves students searching for a solution to a problem by carrying out a project. This problem may be identified on the basis of a description of a company and, for example, its market position, but also, for instance, following a meeting with industry professionals. This method also helps students prepare better for their future careers, as the firms and problems relate to a specific 'sector' in which the student is most likely to work.



A characteristic feature of this method is that it is combined with teaching others. During the sessions, the teacher does not impart theoretical knowledge to the students (through their own presentations); instead, the knowledge is gathered by the students themselves. Each student therefore works independently with information sources so that they can subsequently pass on the information to the other members of the group. The teacher's role is limited to defining the topic (outlining the scope of the issue) and preparing the necessary teaching resources at the outset; thereafter, their role is primarily one of support, whilst also verifying the accuracy of students' understanding of the information, the formulation of theses and questions, and ensuring they follow the correct path towards solving the problem (the role of a mentor or tutor). If a course consists solely of practical sessions, a seminar or a tutorial, it can be delivered in this way 'in its entirety'. If, however, it is supplemented by a lecture, some of the theoretical information will be conveyed during the lecture, but students supplement their knowledge with information they have acquired independently.

The method works best when the group consists of between 4 and 8 people.



Stages of the method (aggregated):

1. Preliminary analysis – familiarising oneself with the task, identifying the problem to be solved, and gathering existing knowledge.
2. Research phase – identifying new sources of information, formulating project objectives (using the SMART analysis)
3. Work planning – assigning tasks and setting a schedule of activities
4. Individual and team work – working independently on specific topics, holding meetings to exchange ideas and expand shared knowledge
5. Search for solutions – a team-based search for solutions through brainstorming, selection of the best solution and preparation of a presentation.
6. Presentation and assessment of the solution – presenting the solution to the teacher, other students and other potential stakeholders; the evaluation process; obtaining feedback; reflection.



This method allows students to achieve learning outcomes in terms of knowledge, skills and social competences. In particular, it teaches teamwork, dealing with differing views and seeking a solution acceptable to all, time management and the timely completion of successive project stages, responsible decision-making, working with information sources, and preparing a presentation of the solution (and thereby developing communication skills, the ability to persuade others of one's ideas, and the ability to argue a case). The method also fosters openness to feedback and critical thinking.

Important: Problem-Based Learning is not the same as Project-Based Learning. Problem-Based Learning focuses on expanding knowledge, asking questions, formulating hypotheses and seeking proposed solutions, but it may end there (it usually relates to a single subject). It is based on case studies, but these do not have to be entirely realistic (e.g. some of the data may be

hypothetical). Project-Based Learning, on the other hand, is a more comprehensive method (often interdisciplinary and cross-curricular), where it is necessary to actually develop a solution ready for implementation and to participate in or observe its implementation. It is also based on entirely real-life cases and problems.

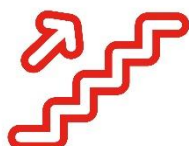
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Challenge Based Learning



The essence of the Challenge-Based Learning method is for students to undertake projects aimed at solving significant, real-world social problems – such as environmental issues, unemployment, and support for people with disabilities and those excluded for various reasons – which the students themselves regard as important. In this way, students not only learn to design solutions, but also recognise the deeper meaning of these activities and their own impact. These projects therefore present authentic challenges for students, which in turn motivate them to take action, even if this extends beyond the time spent in the classroom. However, this method can only be implemented once students have acquired a general understanding of the subject area (and should therefore take place in the later years of their studies).



This method consists of three main phases (although it is cyclical in nature and it is possible to return to earlier stages):

1. Engagement – this involves translating a broadly defined idea into a challenge that the students wish to tackle (an approach moving from the general problem to a specific problem or area of focus). This phase consists of three steps: defining the idea (also with

the support of an academic teacher) ; asking questions (students considering whether a given phenomenon is important to them, how it affects them, to what extent it aligns with their interests, etc.); and defining the challenge (one that can be solved).

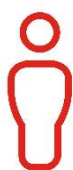
2. Investigation – this is the stage of research and exploration of a given phenomenon, necessary for future action. At the start of this phase, the students, with the support of the teacher, formulate research questions to which they will seek answers. They then gather information from various sources and using different methods of inquiry (e.g. observation, simulation, etc.), seeking answers to their questions. The final step is synthesis, which involves analysing the data and drawing conclusions, which are presented, for example, in a report.
3. Action – involves designing solutions and implementing them. At this stage, the first step is to devise concepts for possible actions, followed by the development of prototypes and the testing of solutions (although at this stage it may become apparent that new research questions have arisen, which prompts a return to the investigation phase), and finally, the practical application of the solutions (e.g. implementing specific actions for the local community) in order to obtain feedback and carry out a self-assessment. The actions can then be developed (refined) and are presented, together with the conclusions, to the academic teacher and, optionally, to the other students.

At the same time, each phase involves documenting, reflecting on and presenting solutions, as well as receiving systematic feedback.



This method enables participants to understand the practical aspects of the issues under discussion; it fosters the development of knowledge (including practical knowledge), skills useful in both professional and personal contexts, and the acquisition of social skills through teamwork. It is also possible to develop creativity and

critical thinking skills both whilst undertaking an activity and after presenting a solution, to attempt to put ideas into practice (moving from an idea to the implementation of a solution), to receive feedback from multiple perspectives, and to refine solutions. Furthermore, students learn to cope with failure (in line with the concept of a growth mindset).



Compared to other methods, it is also significant that the teacher's assessment covers not only the final solution, but also the process of its development, which is documented by the student teams. This therefore provides the teacher with an opportunity to observe the students' activities (including on an ongoing basis, depending on how the documentation is presented), as well as motivation for the

students to work systematically throughout the semester. The teacher takes on a supportive and expert role, whilst also coordinating the students' activities.

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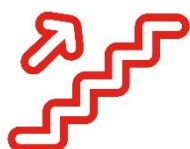
Design Thinking



The Design Thinking method involves understanding the problems faced by a specific target group and aims to enable students to propose innovative solutions. These solutions are also presented to this target group and evaluated by them (although evaluation also takes place from the perspective of the teacher or other students, for example). This encourages students to be open to others, to learn and to refine their solutions.

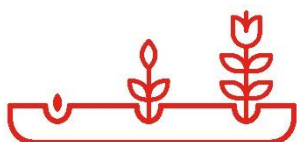
Design Thinking is not based solely on creating well-founded (including economically and technologically) and feasible ideas for solutions, but also allows for the development of prototypes and their implementation. The method therefore comprises conceptual and implementation stages, and involves the need for ongoing communication (within the student group, with the solution's users, and with the teacher). It is a method of working in a team.

The Design Thinking method requires the academic teacher to design open-ended tasks (which have many possible solutions, each of which is initially treated as a potentially good solution). On the other hand, students must be aware that their ideas may be rejected and not take this too seriously, whilst also being prepared for the need for continuous improvement.



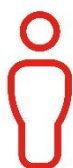
This method involves the following steps:

1. Empathy – identifying the needs of the target group.
2. Defining the problem (in broadly terms) to be solved and, optionally, formulating more specific questions that the students wish to answer.
3. Proposing ideas for solving the problem and evaluating them.
4. Preparing prototypes of the previously selected ideas – in a fairly general form, but allowing the solution to be visualised. Prototypes should be visual (e.g. a presentation, poster or model).
5. Testing – presenting the prepared models to their potential users and analysing the feedback and suggestions they provide.
6. Optionally, improvement of the solutions.



points of view.

The Design Thinking method helps to develop students' creativity, gives them a great scope for independence, teaches them how to move from an idea to a project (including one that is visualised and clearly presented), and enables them to understand other people's



The teacher's role in the Design Thinking method is a supportive one, including the preparation of research tools, the collection of feedback, and the consultation of developed ideas (problems, questions and solutions) before the students meet with the target group again. The teacher also ensures that the principles of teamwork are respected, such as respecting the needs of all parties, postponing the evaluation of ideas, encouraging students to present their arguments, and being open to others' points of view, etc.

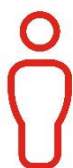
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Work Based Learning



The Work-Based Learning method involves enabling students to learn directly at their temporary or future place of work (which may include work placements, internships and the prospect of employment), as well as other forms of collaboration with potential employers, such as visits by student groups to specific organisations to familiarise themselves with the working environment and carry out real-world tasks. This concept also includes classes taught by practitioners at the university or at their place of work, provided that students carry out real-world tasks. It is also possible to work in a virtual environment. Work-Based Learning may also take the form of 'job shadowing', in which a student spends a whole day observing the professional tasks of a single employee within a given organisation, naturally with that person's consent. This highlights the fact that the Work-Based Learning method (as one of the most effective ways of preparing students for employment in a specific field) can be designed within the framework of a course, as an additional activity within classes or academic societies, as well as across several courses or an whole field of study.



In this situation, both the academic teacher, as the organiser of specific educational activities, and a representative of the organisation in question act as complementary mentors and advisers. Both also provide feedback to the student.



The use of this method allows for the development of practical knowledge (as well as the verification of the relationship between theoretical and practical knowledge), practical skills and the social competences required in a specific industry or organisation. It may then turn out that, whilst learning in the workplace, the student also acquires new skills or knowledge which, due to the specific nature of their degree programme, they could not have acquired directly at university. This may also serve as a basis for observing the extent to which a particular job matches the students' expectations and what further competences and qualifications they still need to perform it. As a result, they may also view the acquisition of further knowledge, skills or competences at university in a different light, considering how these can be applied in their current or future workplace.

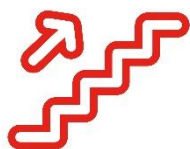
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Inquiry Based Learning



The Inquiry-Based Learning (IBL) method is referred to as learning (or teaching) based on inquiry. This method involves students formulating questions and research problems to which they wish to find answers. It is a theoretical and research-based method, as, on the one hand, it relies on working with information sources and data (which gives it its theoretical character), but it may also involve independent data collection, observations and the use of various research methods. It is also always linked to the formulation of hypotheses (which gives it its research-based nature). In this method, it is essential that the student in question has a true interest in the topic (e.g. based on an inspiring comment by the teacher, observed phenomena, professional experience alongside their studies, etc.) – the topic must therefore intrigue the student and prompt them to start asking questions such as ‘why?’, ‘how does it work?’, etc. This method leads to students co-constructing their own knowledge (in addition to the information provided by the academic teacher).



This method proceeds in the following stages:

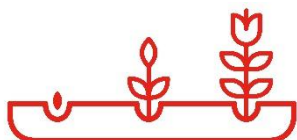
1. Gathering information and discovering an interesting aspect.
2. Formulating a research question or problem.
3. Formulating hypotheses.
4. Planning the inquiry process.
5. Collecting and analysing secondary or primary data.
6. Drawing conclusions and presenting the entire process to the academic teacher.
7. Optionally, discussing the conclusions with other students.

In addition to formulating answers to questions and problems, as well as drawing conclusions, the students’ work may result in the formulation of models, recommendations, etc.

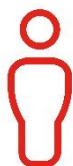
This method can involve varying levels of complexity and student autonomy:

1. A structured research model – with substantial support from the teacher, who sets the research topic and then plays a coordinating role in the process of formulating questions and hypotheses, conducting the research, drawing conclusions, etc.
2. Through controlled research – the teacher proposes a range of topics and resources from which students make their selection

3. 'Guided research' – the teacher's role is limited to defining possible topics and providing support, where necessary, in the process of formulating the research problem, research questions and hypotheses, whilst further activities are left to the students' own initiative
4. Right up to fully independent inquiry – the entire process, from defining the topic to drawing conclusions, is carried out independently by the students.



This method also helps develop students' ability to draw conclusions about cause-and-effect relationships and to think critically, which may sometimes lead them to question certain pieces of information. Students can learn through inquiry, either individually or in groups.



This method allows for a deeper understanding of the process by which the academic teacher reaches specific conclusions, which in turn enables more meaningful feedback and encourages the use of formative assessment. It is also the teacher's task to present topics during classes in a way that is sufficiently inspiring and intriguing to make students want to explore a particular aspect, as well as to provide support during the research process (for example, if students have never formulated research questions, hypotheses, etc., before).

This method can be implemented across an whole course or over several sessions (depending on the scope of the problem), but it also serves as good preparation for the student's own theoretical and research-based dissertation work at a later stage. This method can be carried out 'on campus' or 'at home', without the need to visit a particular organisation.

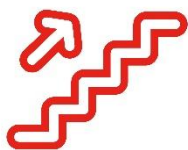
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Research Based Learning



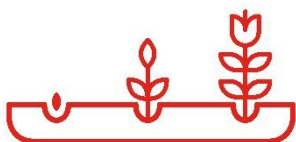
The Research-Based Learning method involves encouraging and allowing students to conduct research (exploring reality through research within the framework of their study programme). From the academic teacher's perspective, it is important to ask open-ended questions and encourage students to analyse primary and secondary data. This method aims to motivate students to acquire knowledge independently (rather than relying solely on information provided by the academic teacher) and to think critically, including about the information presented during their studies.



This method involves the following steps:

1. Identification of a research question.
2. Review of information from secondary sources.
3. Selection of a specific approach described in the literature and choice of an appropriate research method.
4. Original research.
5. Data analysis.
6. Making conclusions.
7. Presentation of results (covering both the presentation of information and evidence from theoretical sources and one's own research findings) and their critical analysis.

What distinguishes the Research-Based Learning (RBL) approach from Inquiry-Based Learning (IBL), therefore, is primarily the need for independent analysis of the relevant literature and the search for answers to questions proposed by the teacher (in the RBL method). IBL, on the other hand, is based on arousing greater curiosity in students and their independent drive to expand their knowledge. It seems that the Research-Based Learning method will be most similar to a student's future preparation of a dissertation or potential engagement in academic research, as it requires independent work, first with the literature on the subject and then with their own research.



Furthermore, this method enables students to learn and use professional vocabulary relevant to their field of study, teaches them how to work with information (including selecting, paraphrasing, classifying, identifying cause-and-effect relationships, assessing the degree of subjectivity or objectivity, and drawing conclusions), and also helps to improve communication skills. This method teaches students how to work with information sources and independently assess their reliability and value.

The Research-Based Learning method can be carried out both individually and in groups, although the group approach makes it easier to solve problems as they arise, to evaluate research tools or data from multiple perspectives, and to discuss conclusions.

This method can be combined with other teaching methods.

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