

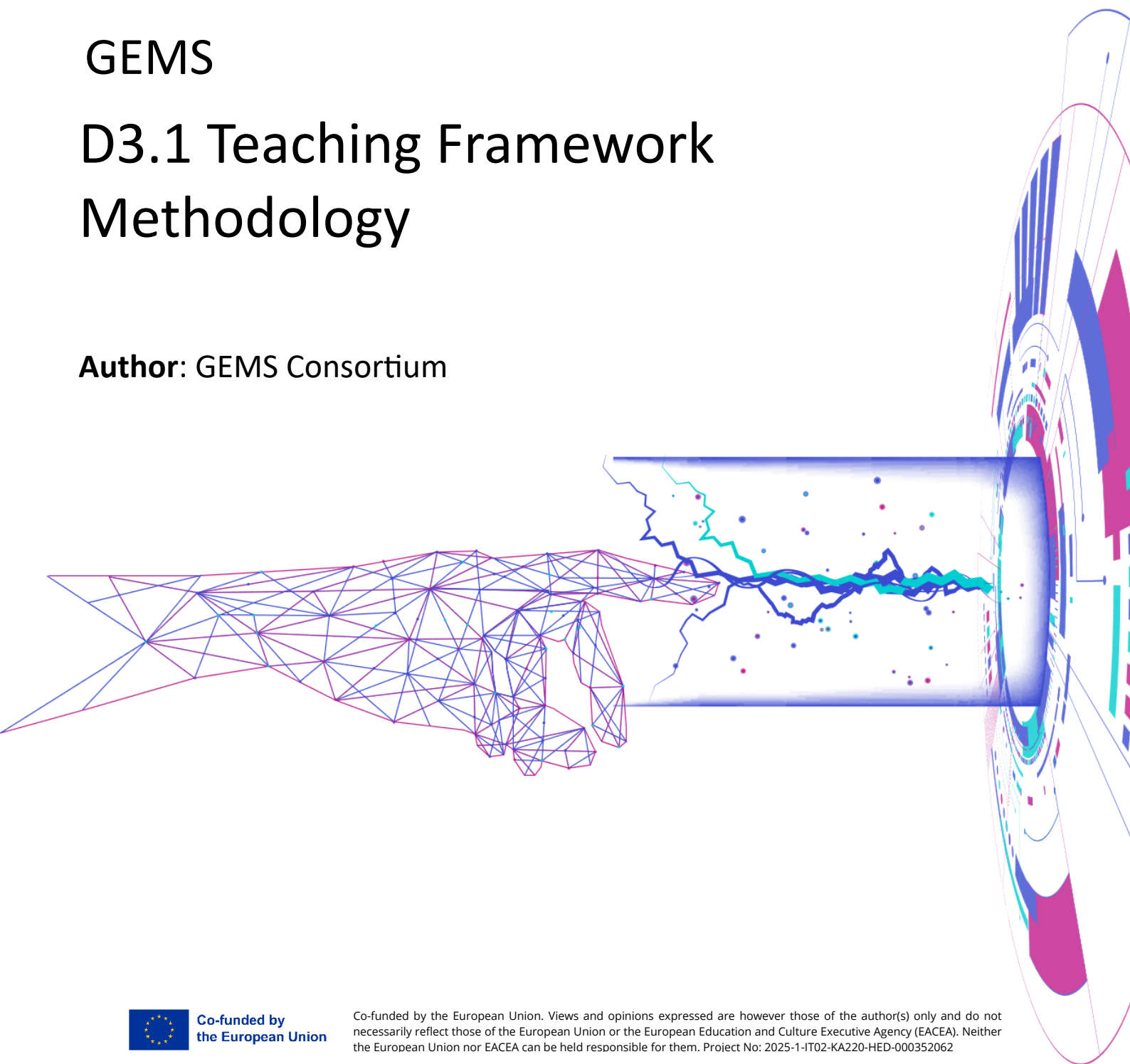


Girls' Empowerment in Digital Skills

GEMS

D3.1 Teaching Framework Methodology

Author: GEMS Consortium



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1. Introduction

1.1 Description of Task T3.1 and purpose of the document

This document sets out the theoretical, conceptual, and methodological foundation of the EquiTeach Guidelines in ICT and of the EquiTeach training programme for gender-inclusive ICT education. It is grounded in evidence-based research on gender-sensitive and inclusive education and on the systemic inequalities that shape women's educational and professional pathways in ICT and, more broadly, in STEM (science, technology, engineering and mathematics) fields.

Within the project, Task T3.1 links the research carried out in WP2 to the subsequent training and pedagogical actions of WP3. It constitutes the conceptual and operational basis for the EquiTeach Guidelines in ICT and their video pills (D3.2) and for the EquiTeach training programme through which they are piloted (A3.5), ensuring coherence between the WP2 findings on gender balance in ICT and the pedagogical design.

The objective is to identify the most effective teaching strategies and training contents for gender-inclusive practice, and thereby to address the systemic barriers to young women's participation, retention, and professional development in ICT. These barriers include gender stereotypes, the lack of female role models, exclusionary educational dynamics, and structural inequalities within academic and technological professional environments.

The training is addressed primarily to university teaching staff in ICT and STEM disciplines, given their role in either reproducing or transforming the inequalities embedded in teaching-learning processes and academic cultures. It aims to provide them with conceptual tools, methodological resources, and practical reflections for integrating gender-sensitive teaching strategies. The ultimate aim is a more inclusive and equitable education, oriented towards gender balance in higher ICT education and in the labour market, acknowledging that educational inequalities carry significant economic and life-course consequences for women.

The following terms are used consistently throughout the document. The *EquiTeach Guidelines* (D3.2, EquiTeach Guidelines in ICT and video pills) are the modular training contents, organised in seven modules, that this framework defines. The *EquiTeach training programme* (A3.5) is the structured training through which the Guidelines are piloted with university teaching staff; its assessment (A3.6) results in D3.3. *University teaching staff* corresponds to the academic staff referred to in the Grant Agreement. ICT is the focus of the project; the term STEM is used where the evidence or the policy framework refers to the broader group of disciplines of which ICT is a part.

1.2 Logic and structure of the document

The document follows a single line of reasoning, in which each step is derived from the previous one: (i) the evidence on the gender gap and the findings of WP2 (Section 2) lead to (ii) a set of identified needs (Section 2.5); these needs are translated into (iii) guiding principles, which

constitute the methodological responses of the framework, and into the competencies that the training aims to strengthen (Section 3); the principles and competencies determine (iv) the training methodology (Section 4), the topics covered (Section 5), and the structure of the modules (Section 6); finally, (v) the impact evaluation framework (Section 7) measures change in the same competencies that the training targets.

Section 8 summarises this chain in a single alignment table and explains how D3.1 will inform the EquiTeach Guidelines (D3.2), the training modules, and the educational activities of WP3.

2. Theoretical justification and framework

2.1 The gender gap in STEM and ICT in Europe

Despite the progress achieved over recent decades in women's access to higher education, European data show that this inclusion continues to be uneven across fields of study, and that structural barriers persist which affect women's educational and professional trajectories in general, and those of women in STEM fields in particular.

The gender gap in STEM and ICT fields constitutes a persistent structural problem within both the education system and the European labour market (Evagorou et al., 2024; Zamfir, 2026). It manifests in multiple interrelated forms: structural barriers to access to higher education and to labour market participation (underrepresentation); barriers to career progression and access to leadership positions (the so-called glass ceiling) (Evagorou et al., 2024); the gender pay gap; and other forms of discrimination, including invisibility and symbolic underrepresentation. The following data help to gauge the gender gap in STEM and to contextualise the problem addressed in this project:

- In 2023, only one in three STEM graduates in the EU was a woman (Zamfir, 2026).
- In 2024, women represented 40.5% of all scientists and engineers across the EU (Eurostat, 2026c).
- Among ICT and engineering graduates, women's share drops to slightly over 21% (Zamfir, 2026).

This overall imbalance in academic and professional domains related to scientific and technological knowledge is the result of a cumulative chain of inequalities. It begins with gender stereotypes and gender socialisation, which produce horizontal segregation, and it is subsequently consolidated through vertical segregation, expressed in fewer leadership positions and lower remuneration.

Women's participation in the labour sectors linked to STEM careers thus continues to be an expression of the structural gender inequality present in European societies. According to Eurostat data, in 2021 women accounted for only 32.8% of tertiary graduates in STEM fields in the European Union (Eurostat, 2026b).

This horizontal segregation is subsequently reproduced in the labour market. In 2024, women accounted for only 19.5% of employed ICT specialists in the EU, which evidences the persistence of structural barriers to access, retention, and promotion within scientific and technological sectors. The situation varies across the countries represented in the project consortium: women accounted for 27.6% of ICT specialists in Estonia, 23.7% in Cyprus, 21.1% in Austria, 19.6% in Spain, 19.2% in Slovenia, and 17.1% in Italy (Eurostat, 2026a). The Women in Digital Scoreboard monitors the same pattern across the Member States (European Commission, 2024).

This structural inequality is also reflected in the persistence of gender pay gaps. According to the European Commission (n.d.), women in the EU earned on average 12% less per hour than men in 2023, while the overall earnings gap exceeds 36%, as a result of differences in hourly wages, higher rates of part-time employment, and the unequal distribution of unpaid care responsibilities.

2.2 Structural causes and the role of the education system

This lower representation cannot be explained by differences in ability, but rather by social, cultural, and institutional factors (Evagorou et al., 2024). European Commission evidence indicates that gender inequalities in STEM begin in the earliest stages of educational socialisation and are progressively consolidated throughout educational trajectories (Evagorou et al., 2024). In this regard, the literature identifies the influence of gender stereotypes, differentiated expectations from teachers, the lack of female role models, and the cultural construction of STEM disciplines as masculinised spaces as key determinants shaping educational pathways (Evagorou et al., 2024; Sáinz & Upadyaya, 2026).

This process has been described in the literature as the “leaky pipeline” (Evagorou et al., 2024): there is a progressive loss of female presence as individuals advance through educational and professional levels. Although girls demonstrate similar or even higher levels of competence in scientific subjects in the early educational stages, this competence is not proportionally translated into the choice of STEM academic pathways, which highlights the importance of identity-related, symbolic, and contextual factors in shaping educational aspirations.

Within this framework, the education system – including higher education institutions – plays a central role in both the reproduction and the transformation of gender inequalities. European studies indicate that teaching practices, curricular materials, and academic guidance processes may incorporate gender biases, often in implicit forms such as internalised biases or classroom dynamics, thereby contributing to the persistence of lower female participation in STEM pathways (Penzenstadler et al., 2025; Sáinz & Upadyaya, 2026). In parallel, the lack of female role models in science and technology limits the construction of STEM identities among girls, affecting their perceived self-efficacy and professional expectations.

This is confirmed by the survey conducted within WP2 among 410 girls and young women (aged 14–28) enrolled in ICT-related learning across the six partner countries: self-efficacy, positive affect,

technology beliefs, and sense of belonging significantly predicted motivation to pursue an ICT career, with self-efficacy additionally predicting expectations of success in the labour market (GEMS Consortium, 2026).

Gender inequalities in STEM fields also have significant social, economic, and technological consequences. The underrepresentation of women, together with their progressive attrition across academic and professional transitions, limits diversity in knowledge production, thereby reproducing androcentric biases in scientific research, technological design, and innovation processes.

2.3 A systemic understanding of gender inequalities: evidence from WP2

It is essential to understand gender inequalities in STEM as an interconnected system rather than as isolated or sporadic phenomena. This systemic understanding is supported by the findings of WP2. The latent profile analysis conducted in the WP2 survey showed that girls' and young women's ICT motivation does not vary along a simple high–low continuum but emerges from distinct configurations of affective, cognitive, social, and identity-related factors, with three differentiated motivational profiles being identified (GEMS Consortium, 2026). Likewise, the cross-country analysis of good practices concluded that girls' participation in ICT is not primarily limited by ability, but by confidence gaps, stereotype threat, lack of belonging, unclear pathways, and the absence of visible identity models (Pata, 2026).

Consequently, lower female participation in STEM studies and professions, as well as related inequalities such as the gender pay gap, cannot be interpreted as circumstantial or natural phenomena (e.g., “there are fewer women because they are not interested in these fields”). Among the causal explanations of social inequalities in leadership positions within scientific and technical fields is the historical separation and stratification of the public and private spheres: since the Enlightenment, the public sphere of scientific knowledge production has been attributed predominantly to men, while these sectors have been socially and economically valued as high-prestige domains.

Although gender biases and stereotypes emerge in early childhood and persist into adulthood, the university stage is a key moment, as transitional phases represent critical inflection points in the loss of women in STEM fields. Research highlights academic transitions as key turning points in the leaky pipeline, whereby a significant proportion of women exit STEM fields during educational or professional transition stages (Evagorou et al., 2024; Zamfir, 2026).

The WP2 survey findings add nuance to this phenomenon. Among the three motivational profiles identified, one group ($n = 71$) recognised the relevance and usefulness of ICT but did not envision themselves pursuing ICT careers. This reveals a relevance–motivation gap: acknowledging the value of the field is not sufficient to generate career intentions when identity alignment with ICT is lacking (GEMS Consortium, 2026). Moreover, no statistically significant difference in sense of belonging to

the ICT professional field was found between the younger (14–19) and older (20–28) age groups, $t = 1.89$, $p = .059$, $d = 0.19$, despite the latter being enrolled in ICT-related curricula. This may indicate weak professional identity development even among those already within ICT educational pathways (GEMS Consortium, 2026). These findings suggest that attrition operates not only through exit at transition points but also through the non-consolidation of ICT identity within the pathway itself.

All these phenomena justify the need to establish systematic and sustained training strategies aimed at reducing gender gaps in STEM fields, based on inclusive methodologies and planned interventions that explicitly adopt a gender-sensitive perspective.

2.4 European policy framework

The European Union considers the reduction of the gender gap in STEM and digital sectors a strategic priority within its broader policy framework on equality, innovation, and digital transformation, and it supports targeted educational interventions and teacher training as key mechanisms for structural change. This framework encompasses strategic policy instruments and evidence-based reports that collectively emphasise the persistence of structural inequalities across educational, professional, and leadership pathways in science and technology. Three documents are particularly relevant for this deliverable:

- **Digital Education Action Plan 2021–2027** (European Commission, 2020a). It identifies women's participation in STEM studies and careers as a strategic priority ([Action 13](#)) and promotes digital skills development, inclusive education systems, and targeted actions to reduce gender imbalances in STEM pathways.
- **Gender Equality Strategy 2020–2025 and Gender Equality Strategy 2026–2030** (European Commission, 2020b, 2026). The 2020–2025 strategy recognises persistent gender segregation in education and labour markets, highlights the underrepresentation of women in digital and technological sectors, and promotes gender mainstreaming across education, employment, research, and innovation policies, with a focus on reducing occupational segregation. The 2026–2030 strategy, adopted in March 2026, gives continuity to this framework.
- **Addressing the gender gap in STEM education across educational levels** (Evagorou et al., 2024). This European Commission report provides a comprehensive analysis of gender inequality in STEM education and identifies key structural determinants such as gender stereotypes, teacher expectations, the lack of female role models, classroom climate, and vocational segregation. It concludes that gender disparities in STEM are not explained by differences in ability but by social and educational factors, and it explicitly recommends teacher training and institutional capacity-building as central intervention strategies.

2.5 Needs identified

Taken together, the literature, the European policy framework, and the WP2 findings point to six needs that the EquiTeach Guidelines and the training programme must address. They are labelled N1–N6 so that they can be traced through the principles (Section 3), the modules (Section 6), and the evaluation (Section 7); the full alignment is presented in Section 8.

- **N1 – Structural understanding.** University teaching staff need to understand the gender gap in ICT and STEM as a structural and cumulative phenomenon, not as a matter of ability or individual interest (Evagorou et al., 2024; Pata, 2026).
- **N2 – ICT identity, self-efficacy, and belonging.** Learning environments need to support the development of ICT identity, since self-efficacy and sense of belonging predict ICT career motivation, and recognising the relevance of ICT is not sufficient on its own (GEMS Consortium, 2026).
- **N3 – Awareness of bias in teaching practice.** Teaching staff need to recognise and revise implicit biases, differentiated expectations, and classroom dynamics; teacher encouragement and mediation, and normalised participation structures, were found to support girls' participation (Pata, 2026).
- **N4 – Inclusive teaching design.** Curricula, methodologies, assessment, and language need to be redesigned on inclusive lines; project-based and collaborative learning and an interdisciplinary, human-centred framing of ICT recur among the effective practices identified, and the survey calls for identity-oriented and profile-sensitive approaches (Pata, 2026; GEMS Consortium, 2026).
- **N5 – Role models, mentoring, and professional visibility.** In higher education, women remain in ICT pathways more successfully when they gain access to role models, mentoring, and professional communities (Pata, 2026).
- **N6 – Institutional anchoring.** Successful inclusion depends less on isolated interventions than on the accumulation of small, repeated micro-practices across educational pathways, sustained by institutions (Pata, 2026).

3. Guiding principles and methodological axes

This section presents the axes and theoretical frameworks that guide the training methodology: its foundations in pedagogical principles, educational orientation, and the gender perspective. They constitute the methodological responses of the framework, that is, the translation of the needs identified in Section 2.5 into pedagogical criteria. The section closes with the competencies that the training programme aims to strengthen.

3.1 Evidence-based approach

The training proposal is grounded in an evidence-based approach. The need for an educational approach that incorporates a gender perspective has been established in Section 2, and there is extensive research on pedagogical models that advocate a shift towards a gender perspective in order to reverse the androcentric logics of educational systems.

Notably, the WP2 comparative analysis found that, despite cultural and institutional differences across the six partner countries, the underlying motivational mechanisms supporting girls' engagement in ICT – belonging, safety, creativity, collaboration, visible role models, meaningful projects, and attainable success – were remarkably similar across national contexts (Pata, 2026). This consistency supports the design of a common European training framework, adaptable in its delivery but shared in its core pedagogical principles.

3.2 Principle of educational inclusion

No educational system is neutral. Everything that constitutes the educational system – subjectivities, practices, methodologies, contents, spaces – contains a subtext, a set of beliefs and an ideological framework that is transmitted. The idea of neutrality in the educational system stems from the historical equation of the masculine with the neutral or universal.

Following this premise, the educational system generates biases and, therefore, exclusions (Penzenstadler et al., 2025; Sáinz & Upadyaya, 2026). In other words, the methodologies used, the contents, and the beliefs and ideologies guiding educational practices tend to align with an androcentric model. Consequently, the educational model facilitates the inclusion of a certain type of student, for whom the methodologies are advantageous, while excluding those who do not fit within them. Naming the principles and beliefs that underpin educational practices, rather than assuming them to be neutral, makes those practices more inclusive.

The principle of educational inclusion constitutes a central axis of the methodological proposal; it is an imperative for any educational system and is directly linked to opportunities for the equitable participation of women in STEM fields. Inclusion cannot be understood solely as access to education or educational resources, but rather as meaningful participation, a sense of belonging, and equitable learning conditions (needs N2 and N5). Ensuring educational inclusion is not possible without a review from a gender perspective.

3.3 Gender-sensitive pedagogies

Gender-sensitive pedagogy derives directly from the principle of educational inclusion. Educational processes, which are not neutral, are permeated by social constructions of gender that influence expectations, teaching practices, and educational outcomes. Gender-sensitive pedagogy (or the gender perspective in education) is a framework of understanding that focuses on reversing the androcentric logics of the educational system, which predominantly benefit male students, as well

as students who fit within categories of social privilege. Given that STEM fields show high levels of horizontal segregation (the separation of sectors according to gender), the gender perspective is particularly important in this field.

The main consequence of the preceding analysis is that the participation of girls and young women is reduced by the methodologies used and by the lack of representation (role models and references). The WP2 comparative analysis of good practices across the six partner countries provides empirical grounding for this claim. Recurring micro-practices such as teacher encouragement and mediation (strongly visible in Estonia, Cyprus, and Slovenia) and whole-class or normalised participation structures (Estonia, Austria) were found to actively support girls' participation and to remove self-selection bias. This confirms that pedagogical and participation structures, rather than individual ability or interest, shape girls' engagement with ICT (Pata, 2026).

Gender biases in education are related to the pedagogical methodologies used, which facilitate the active participation of certain groups of students over others, as well as to classroom climate and expectations about students. The supposed neutrality of education is based on *gender blindness*, that is, a tendency to deny or "not see" how gender affects and influences educational practices. The notion of the *hidden curriculum* is equally important: it refers to all those contents, messages, and beliefs that are embedded without being explicit and that shape the subjectivity of the educational community.

These concepts are introduced and further developed in the training (Modules 4 to 6). Focusing attention on these biases is key to gender-sensitive pedagogy and responds to needs N3 and N4.

3.4 Principle of transfer

Gender-sensitive pedagogies are based on the assumption that teaching staff are also subjects within the educational system and not merely transmitters of knowledge. This is of vital importance, as it shapes the commitment to transformative educational change.

For this reason, at a methodological level, the EquiTeach Guidelines incorporate elements aimed at facilitating the recognition of personal biases and their influence, as well as the revision of one's own teaching practice (needs N3 and N4). These elements are transversal to the content and take the form of reflective activities or guiding questions in every module.

3.5 Systemic and structural perspective

This proposal is based on a conception of gender inequalities in STEM as a systemic and structural issue: it situates inequalities within a set of interconnected social processes and rejects individualistic explanations (need N1). From this perspective, gender inequalities in STEM are not presented as an individual problem but as a phenomenon sustained by processes of socialisation, social expectations, institutions, cultural representations, curricula, and educational practices.

This perspective allows inequality to be understood as a complex and multicausal phenomenon and highlights the need for educational interventions that operate systemically. This premise is directly supported by the conclusions of WP2: the cross-country analysis found that girls' motivation towards ICT is primarily shaped by social participation environments rather than by innate interest or technical ability, and that successful inclusion depends less on isolated interventions than on the accumulation of small, repeated micro-practices across educational pathways (Pata, 2026).

The logical consequence is that educational policies must be consistent and sustained through institutional strategies (need N6). Transformation must be comprehensive, from individual teaching practices to institutional policies within educational and research institutions. In this sense, *gender mainstreaming* becomes a key concept.

3.6 Targeted competencies of the training programme

In response to the needs identified and in line with the principles above, the training programme aims to strengthen three types of competencies:

- **Conceptual competencies:** the ability to analyse inequality in the university context in relation to the structural, social, and cultural framework of gender inequality, and to identify mechanisms of discrimination (needs N1, N5, and N6).
- **Analytical competencies:** the critical analysis of discourses and educational practices that may perpetuate inequalities, including the identification of gender biases in materials and learning environments (needs N2, N3, and N4).
- **Attitudinal competencies:** commitment to gender equality and to the eradication of systemic barriers within the university context, including awareness of one's own biases and the disposition to revise teaching practice (needs N3 to N6).

These three competencies structure the modules (Section 6) and define the dimensions of the impact evaluation (Section 7).

4. Training methodology

The EquiTeach Guidelines are designed as modular training guidelines structured into seven modules, each consisting of five lessons accompanied by complementary video pills.

Each module includes:

- an introductory section outlining the learning objectives and the lesson index;
- theoretical content organised into five lessons;
- a reflective task or reflection question, which may be placed either at the beginning or at the end of the module;

- a summary section presenting the key takeaways.

The EquiTeach training programme is delivered in an online, asynchronous, and self-paced format, which makes it compatible with the workload of university teaching staff and transferable across the partner institutions. The estimated dedication time for each module ranges from approximately 75 to 90 minutes. The reflective tasks put the principle of transfer (Section 3.4) into practice, by inviting participants to relate the content of each module to their own teaching.

In addition, a series of video pills related to teaching ICT topics will be produced. These video pills are audiovisual capsules of up to 15 minutes, linked to each lesson and designed to support learning and the consolidation of the training contents. They may function as visual summaries of the content presented, thereby ensuring coherence and continuity across lessons; as complementary extensions of the material, through examples, representations, and illustrations of social phenomena related to the topics addressed; or as illustrations of how the content can be applied in STEM classrooms and teaching methods.

5. Scope and definition of the topics included in the EquiTeach Guidelines

The proposed contents are intended to respond to the needs, barriers, and inequalities identified in relation to the participation of young women in ICT and STEM fields (Section 2.5).

Based on the findings of WP2, the Grant Agreement, and the existing theoretical framework on gender inequalities in STEM, the training contents address the following topics:

- barriers to accessibility;
- inequalities in STEM fields as structural and cumulative inequalities;
- the cultural context sustaining gender inequality and the mechanisms of differential gender socialisation;
- gender biases;
- androcentrism;
- gender mainstreaming;
- structural and teaching-practice-related aspects, including curriculum organisation, teaching planning, and university structures;
- gender-sensitive curricula;
- inclusive language;
- inclusive teaching planning, including both content and methodologies;

- inclusive assessment practices;
- identified good practices;
- the promotion of reflection spaces and critical thinking;
- gender gaps within STEM professions;
- systemic barriers affecting accessibility, participation, and professional and economic development in STEM fields.

6. Structure of the modules

The seven modules follow a narrative thread that moves from diagnosis to action. Modules 1 to 3 establish what the problem is, where it comes from, and how it manifests in women's experiences and trajectories. Modules 4 and 5 turn to the university and to the role of teaching staff in reproducing or transforming inequality. Modules 6 and 7 provide the tools for change, at the level of teaching design and at the institutional level. Table 1 summarises the guiding question of each module, the needs it addresses, and the competencies it primarily targets. Lesson titles are indicative and may be refined during the development of the modules in D3.2.

Module	Guiding question	Needs addressed	Competencies primarily targeted
1. Justification and statistical context	What is the problem, and what is its magnitude?	N1	Conceptual
2. Understanding structural inequalities	What are the causes of the problem?	N1	Conceptual
3. Systemic barriers and inequalities	How does the problem manifest in women's experiences and trajectories?	N1, N2, N5	Conceptual, analytical
4. Education and gender	How does the university, often unintentionally, reproduce inequality?	N3, N6	Conceptual, analytical
5. Rethinking teaching practice	What is the role of teaching staff, and how can they transform the problem?	N2, N3	Analytical, attitudinal
6. Redesigning gender-sensitive teaching	Which tools allow teaching to be transformed?	N2, N4	Analytical, attitudinal
7. Institutional initiatives and good practices	How can change be sustained and institutionalised?	N5, N6	Conceptual, attitudinal

Table 1: overview of the EquiTeach modules, needs addressed, and competencies targeted

6.1 Module 1. Justification and statistical context

Why promote women's participation in STEM fields?

- Lesson 1.1. Introduction
- Lesson 1.2. Current situation: women and STEM. What does research say?
- Lesson 1.3. Accessibility, representation, and participation
- Lesson 1.4. Cumulative inequality and educational pathways
- Lesson 1.5. Understanding gender inequalities in STEM fields

6.2 Module 2. Understanding structural inequalities

How can gender inequalities in STEM careers be explained?

- Lesson 2.1. Structural gender inequality and intersectionality
- Lesson 2.2. Androcentrism and otherness
- Lesson 2.3. Historical trajectories and cultural mechanisms
- Lesson 2.4. Differential gender socialisation
- Lesson 2.5. Horizontal and vertical segregation

6.3 Module 3. Systemic barriers and inequalities

- Lesson 3.1. Main gender gaps in STEM fields as a consequence of cumulative inequalities
 - Employment and wage gaps
- Lesson 3.2. Main barriers: the glass ceiling and sticky floor phenomena
 - Direct and indirect discrimination
 - Maternity
 - Unfavourable work environments for women
 - Unequal distribution of recognition
 - Classroom climate
- Lesson 3.3. Effects of gender stereotypes and gender socialisation
 - Self-perception and self-confidence
 - Stereotype threat (the situational effect whereby awareness of a negative stereotype impairs performance)

- Impostor syndrome
- Lesson 3.4. Representation and representativeness
 - Underrepresentation, invisibilisation, and lack of role models
 - The Matilda effect
- Lesson 3.5. Gender-based violence in university and STEM environments
 - Everyday sexism (*micromachismos*) and gender-based violence

6.4 Module 4. Education and gender

- Lesson 4.1. The university as a space of reproduction and transformation
- Lesson 4.2. Androcentrism in education
- Lesson 4.3. The hidden curriculum
- Lesson 4.4. Gender blindness
- Lesson 4.5. Legal framework in universities

6.5 Module 5. Rethinking teaching practice

- Lesson 5.1. The importance of teaching practice
- Lesson 5.2. What do female students and professionals say?
- Lesson 5.3. The role of teaching staff in academic guidance
- Lesson 5.4. Teaching staff biases and differentiated expectations
 - Condescension and the Pygmalion effect
- Lesson 5.5. What can I do? Rethinking teaching practice

6.6 Module 6. Redesigning gender-sensitive teaching

- Lesson 6.1. Principles of gender-sensitive education
- Lesson 6.2. Curriculum review
- Lesson 6.3. Teaching methodologies
- Lesson 6.4. Inclusive assessment
- Lesson 6.5. Inclusive language and communication

6.7 Module 7. Institutional initiatives and good practices

- Lesson 7.1. From micro-level practices to the institutionalisation of policies

- Lesson 7.2. Sustainability and institutionalisation
- Lesson 7.3. Gender mainstreaming
- Lesson 7.4. Role models, leadership, and mentoring
- Lesson 7.5. Institutional good practices and networks

7. Impact evaluation framework

In line with the objectives of WP3, the EquiTeach Guidelines are conceived not only as a training resource but as a structured intervention aimed at producing measurable change in the teaching staff who take part in it. Accordingly, this framework establishes the methodological approach for evaluating the impact of the training, which will be operationalised during the piloting phase (A3.5) and consolidated in the EquiTeach Programme Assessment Report (A3.6 / D3.3).

The evaluation is designed as an impact assessment rather than a mere satisfaction survey. Its purpose is to capture the extent to which the intervention modifies participants' awareness, attitudes, and professional dispositions regarding gender inequalities in ICT and STEM education, in coherence with the project indicator concerning the increase in awareness of gender-based societal bias in ICT.

To this end, the evaluation will follow a pre-test/post-test design with participating teaching staff. A baseline questionnaire will be administered before the training; an immediate post-test will be administered on completion of the programme; and a delayed post-test, three months later, will capture whether the observed changes persist beyond the immediate training context. Comparing participants' baseline responses with their responses after the programme allows the change associated with the intervention to be observed.

The dimensions to be assessed correspond one-to-one to the three types of competencies that the training programme aims to strengthen (Section 3.6), so that the evaluation measures change in precisely what the modules teach:

- **Conceptual dimension:** knowledge and understanding of the structural and cultural mechanisms underlying gender inequalities in ICT and STEM fields.
- **Analytical dimension:** the capacity to critically identify gender biases in educational discourses, materials, and teaching practices.
- **Attitudinal dimension:** awareness of one's own biases, commitment to gender equality, and disposition to revise teaching practice from a gender-sensitive perspective.

The evaluation will combine validated instruments drawn from existing research on gender attitudes and bias with items specifically developed for the project, in order to capture both well-

established constructs and the particular knowledge and reflective dimensions addressed by the EquiTeach Guidelines. The specific instruments, scales, and items will be defined once the training content has been finalised, ensuring full alignment between what is taught and what is measured.

The detailed design and application of these instruments fall within the scope of the EquiTeach Programme assessment (A3.6), which will translate the findings into actionable recommendations for the refinement and scalability of the programme.

8. Coherence of the framework and use of D3.1 in subsequent project work

8.1 From WP2 findings to impact evaluation

Table 2 brings together the chain of reasoning developed in this document. Each row starts from a WP2 finding, states the need derived from it, and indicates the methodological response (guiding principle), the modules in which the need is addressed, and the competency – and therefore the evaluation dimension – through which the expected change will be measured.

WP2 finding	Identified need	Methodological response (Section 3)	Modules	Competency and evaluation dimension
Girls' participation in ICT is limited not by ability but by confidence gaps, stereotype threat, lack of belonging, unclear pathways, and the absence of visible identity models (D2.4).	N1 – Structural understanding of the gender gap	Systemic and structural perspective (3.5); evidence-based approach (3.1)	1, 2, 3	Conceptual
Self-efficacy, positive affect, technology beliefs, and belonging predict ICT career motivation; there is a relevance–motivation gap; belonging does not differ between age groups (WP2 survey).	N2 – ICT identity, self-efficacy, and belonging	Principle of educational inclusion (3.2); gender-sensitive pedagogies (3.3)	3, 5, 6	Conceptual, analytical
Teacher encouragement and mediation, and normalised participation structures, support girls' participation and remove self-selection bias (D2.4).	N3 – Awareness of bias in teaching practice	Gender-sensitive pedagogies (3.3); principle of transfer (3.4)	4, 5	Analytical, attitudinal
Project-based, collaborative learning and an interdisciplinary, human-centred framing of ICT recur among effective practices (D2.4); profile-sensitive approaches are needed (WP2 survey).	N4 – Inclusive teaching design	Gender-sensitive pedagogies (3.3); principle of transfer (3.4)	6	Analytical, attitudinal
In higher education, women remain in ICT pathways when they gain access to role models, mentoring, and professional communities (D2.4).	N5 – Role models, mentoring, and professional visibility	Principle of educational inclusion (3.2); systemic and structural perspective (3.5)	3, 7	Conceptual, attitudinal
Inclusion depends on the accumulation of small, repeated micro-practices across educational pathways; no single actor is sufficient (D2.4).	N6 – Institutional anchoring	Systemic and structural perspective (3.5), including gender mainstreaming	4, 7	Conceptual, attitudinal

Table 2: alignment between WP2 findings, identified needs, methodological responses, modules, and evaluation

8.2 How D3.1 informs the subsequent work of WP3

D3.1 is the reference document for the remaining work of WP3. It will inform the EquiTeach Guidelines (D3.2), the training modules, the educational activities, and the impact evaluation as follows:

- **EquiTeach Guidelines in ICT (D3.2).** D3.1 provides the specification that D3.2 develops in full. The guiding principles (Section 3) set the pedagogical criteria for the Guidelines, the list of topics (Section 5) sets their scope, and the architecture of seven modules with five lessons each (Section 6) sets their structure. Every topic can be traced back to a need identified in Section 2.5, which ensures that the contents remain anchored in the WP2 evidence.
- **Training modules and video pills (A3.2, A3.3).** The module structure (Section 6) is the blueprint for content development. All modules follow the common template defined in Section 4 (learning objectives, five lessons, reflective task, key takeaways, video pills). Lesson titles may be refined during development, provided that the alignment shown in Tables 1 and 2 is preserved.
- **EquiTeach training programme and educational activities (A3.5).** D3.1 defines the target group, the three competencies, and the delivery format (online, asynchronous, self-paced) of the training through which the Guidelines are piloted with university teaching staff. The reflective tasks and the other educational activities are designed according to the principle of transfer (Section 3.4), and the micro-practices documented in WP2 provide the practical examples used in Modules 5 to 7.
- **Impact evaluation (A3.6 / D3.3).** The competencies defined in Section 3.6 determine the evaluation dimensions (Section 7) and, once the contents are final, the selection of instruments and items.

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