

FUNCTIONAL SCHOOL MATURITY GAP (DMEF/FSMG) FROM ENVIRONMENTAL IMMEDIACY

The need for a new teaching–learning model

FUNCTIONAL SCHOOL MATURITY GAP (DMEF/FSMG)

Diagnosis and response from the school

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Starting question

Today's immaturity in students is due to a combination of factors: a lack of cognitive training caused by digital immediacy, an overprotective family environment that delays independence and brain development, and difficulties with emotional regulation. If digital immediacy is going to persist and we cannot always count on the environment and families, then —to address it in a school— what is needed?

1. Conceptual framework: the Functional School Maturity Gap (FSMG)

The term Functional School Maturity Gap (FSMG) does not designate a developmental disorder or a clinical condition, but an acquired pattern of functioning: a set of cognitive, emotional and behavioural difficulties that emerge as an adaptive response to an environment of permanent immediacy —digital and family— and that manifest specifically in the school context. The key to the concept is that it is a functional, not structural, immaturity: it is not determined by the student's neurological development, but produced by the environmental conditions in which that development takes place.

This phenomenon is supported by a convergence of independent lines of research that, without necessarily using this term, describe the same mechanisms from different disciplines.

1.1 Evidence from neuroscience and cognitive development

Research on screen time and adolescent brain development has documented, through neuroimaging, that prolonged use of digital media is associated with functional and structural changes in the brain regions linked to executive control and reward systems (Lissak, 2018; review in *Frontiers in Human Neuroscience*, 2021). Specifically, repeated digital activity reinforces the tendency to seek short-term gratification and weakens the central cognitive-control network —the system that allows sustained attention, postponing reward and regulating impulses.

This line connects with Walter Mischel's studies on delay of gratification (Stanford, 1970). His research showed that the capacity to postpone immediate reward predicts academic performance, social competence and stress management in adolescence. What is relevant for the current context is that this capacity is sensitive to the environment and can be eroded —or trained— by the conditions in which the individual lives. A digital ecosystem designed for instant gratification acts as a systematic trainer in the opposite direction.

1.2 Evidence from social psychology and studies on digital childhood

Jonathan Haidt, professor at NYU Stern School of Business, published *The Anxious Generation* in 2024. Drawing on a review of dozens of longitudinal studies, he documents that the shift towards a smartphone-based childhood —accelerated since 2012— coincides with an increase in anxiety, depression, attentional fragmentation and a deterioration of in-person relationships among adolescents in all the Western countries studied.

The mechanism identified is precise: the replacement of free play and in-person relationships —natural training grounds for emotional regulation and frustration tolerance— with digital interactions that offer instant feedback, avoid real conflict and require no waiting. The result is not a sick generation, but a generation with no practice in the competences the school takes for granted.

1.3 Evidence from studies on parenting styles

The concept of helicopter parenting —overprotective parenting— was described by the psychiatrist Haim Ginott (1969) and has been the subject of systematic research. A review published in *Frontiers in Psychology* (2022), analysing 38 studies, found that overprotective parenting directly predicts

higher levels of anxiety and depression in adolescents, mediated by the frustration of basic psychological needs and difficulty regulating emotions.

Julie Lythcott-Haims, former dean of students at Stanford University, documented its impact on young university students in *How to Raise an Adult* (2015): difficulty making decisions without consulting their parents, low tolerance of failure and the expectation that adults will resolve obstacles before they have to face them. Overprotection, though motivated by love, produces exactly what it seeks to avoid: fragile, dependent adults.

1.4 Evidence from the psychology of meaning and inner life

Research on motivation and purpose in adolescents adds a fourth dimension to the FSMG phenomenon: the void of meaning. Viktor Frankl described the existential void as the consequence of a frustrated or blocked search for meaning, and warned that its most frequent manifestations are apathy, addiction and aggression —three signs present in the data on today's adolescents.

Deci and Ryan (Self-Determination Theory, SDT) documented empirically that genuine learning requires the satisfaction of three basic psychological needs: autonomy (feeling that my actions are my own), competence (feeling that I can influence my environment) and relatedness (feeling that I belong and that I matter to someone). When the environment systematically frustrates those needs —as the combination of digital immediacy and family overprotection does— intrinsic motivation is replaced by extrinsic motivation or by outright amotivation. The student does things for the mark, out of pressure, or simply does not do them.

William Damon (Stanford, *The Path to Purpose*, 2008), drawing on in-depth interviews with 1,200 young people, found that only 20% of adolescents had a clear purpose guiding their decisions. 60% were in a state of active disengagement —neither in crisis nor committed, simply absent— and 25% showed vague aspirations with no commitment or action towards them. Damon links this absence of purpose directly with the culture of immediacy and with a parenting style that has prioritised immediate wellbeing over the development of identity and commitment.

The void of meaning is not a spiritual or philosophical problem: it is a documented psychological phenomenon that directly affects the student's capacity to sustain effort, make decisions with real consequences and project themselves into the future. It is precisely the dimension that most distinguishes a school from any other cognitive-training environment.

1.5 Summary: why the term FSMG is operative

The four lines of evidence converge on one point: the difficulties teachers observe —low tolerance of waiting, interpreting effort as a sign of error, difficulty sustaining complex tasks, poor emotional regulation in the face of failure— are not personality traits or neurological deficits, but functional patterns acquired in a specific environment. This distinction is pedagogically crucial: what the environment has produced, the environment can modify.

FSMG does not describe what the student is, but how they function in response to the conditions in which they have grown up. That makes it an educational phenomenon, not a clinical one, and places the response where it belongs: in the design of the school experience.

Intergenerational research confirms that this tendency is not a subjective perception of teachers: the average trend has changed. Jean Twenge (2013) documented, through cross-sectional meta-analyses with tens of thousands of subjects, a systematic generational shift away from intrinsic values —a sense of community, affiliation, self-acceptance— towards extrinsic values —image, instant recognition, quick reward. This shift, accumulated over decades, means that the average starting point of the student entering school today is different from that of 20 or 30 years ago in terms of their

disposition for sustained effort, delay of reward and frustration tolerance. Designing the school experience while ignoring that change is pedagogically naïve.

2. The diagnosis: four factors that reinforce each other

Before proposing responses, it is worth understanding the interconnected nature of the problem. The four factors identified do not act independently, but reinforce one another.

Factor	Effect on the student	Why it escapes the school
Digital immediacy	Erosion of sustained attention, low frustration tolerance, fragmented thinking.	It is structural to the technological ecosystem the student inhabits outside the classroom.
Family overprotection	Interpreting effort as a sign of error, dependence on the adult to solve problems, little real decision-making.	It belongs to the family's private and affective sphere; the school cannot legislate over it.
Insufficient emotional regulation	Low tolerance of failure, difficulty working in a team with real conflict, risk avoidance.	It is formed in the early years of life and in the closest everyday environment.
Void of meaning	Amotivation, affective disconnection from learning, inability to project into the future, effort without inner direction.	It is formed in the absence of experiences of real purpose and in an environment that prioritises immediate wellbeing over the development of identity.

The operational consequence is clear: the school cannot wait for those external factors to change. It must design its action on the assumption that they are constant.

3. What the school must take on as its own responsibility

3.1 Redesign learning as deliberate cognitive training

If digital immediacy erodes the capacity for sustained attention, deep reasoning and frustration tolerance, the school has to make those capacities an explicit object of work, not a prerequisite that is taken for granted.

This means tasks with built-in delay of reward (projects spanning several weeks, processes with phases that have no immediately visible result), open problems with no single correct answer, and slow, analytical reading as a systematic practice. Not as pedagogical nostalgia, but as a deliberate counterweight to the digital ecosystem.

3.2 Build a culture of difficulty as a value

Family overprotection produces students who interpret effort as a sign of error: “if it's hard, something is wrong.” The school needs to install the opposite narrative explicitly and consistently.

- A common teacher language about the value of effort and productive error.
- Assessment that recognises the process, revision and learning from failure.
- Progressive internalisation by the student of a new frame of reference about learning.

3.3 Take on the function of an emotional reference environment

If the family does not train emotional regulation, someone has to. That does not mean psychologising the school, but designing situations where emotional regulation is necessary and can be practised.

The key is: a safe but not protected environment. The school does not eliminate difficulty; it grades it and accompanies it.

Teamwork with real conflict, peer assessment, public presentations, projects with possible failure and real consequences within a pedagogically controlled framework.

It is worth distinguishing two layers that are often confused: emotional regulation —how I manage what I feel— and meaning —what makes it worth feeling and striving for. The school works on both, and the second requires that the student can ask real questions about their own learning and about who they want to be. Without that layer, emotional regulation is reduced to a survival technique.

3.4 Give the student real, not simulated, agency

Much of the immaturity persists because students have never had to make decisions with real consequences. A school that wants to reverse this needs structures where the student chooses, executes and is genuinely accountable.

Simulated agency (to avoid)	Real agency (to design)
Choosing between options pre-set by the teacher	Defining one's own research question
Presenting a product with no real audience	Presenting to an external audience (families, experts, community)
Error with no consequence, always recoverable	Error with real consequence within a safe framework
A closed process, step-by-step set by the teacher	An open process with student decisions at each phase

Deci and Ryan showed that autonomy —feeling that my actions are genuinely mine— is a basic psychological need whose satisfaction is a condition for intrinsic motivation. Real agency is not just a pedagogical technique: it is the direct answer to the void of meaning. When the student chooses, executes and is genuinely accountable, they begin to build the experience that their effort has its own direction —and that experience is the most effective antidote to amotivation.

3.5 Guarantee teacher coherence as a structural condition

None of the above works if each teacher applies it in isolation and the student perceives contradictory messages depending on the subject. Immaturity feeds on the incoherence of the system.

A school that wants to act on maturity needs explicit agreements between teachers on language, criteria and responses to complaints or effort avoidance. Not uniformity, but a shared culture.

4. What the school has to stop doing

Just as important as the above: stop compensating for immaturity instead of working on it. There is a form of school overprotection that replicates exactly what the family the school is trying to counteract does.

Practices that reproduce the problem	Alternative consistent with the objective
Fragmenting tasks until no decision is left to the student	Tasks with open phases and student decisions at each step
Repeating tests with no prior reflection or real improvement work between them (≠ voluntary improvement tests in Bachillerato, which require a real process)	A second chance tied to real work on the errors: reflection, identification of the fault and visible effort before the new test

Practices that reproduce the problem	Alternative consistent with the objective
Removing difficulty when there is a complaint	Grading the difficulty and accompanying it; never removing it
Solving the student's problems before they attempt them	Waiting, observing and intervening only when the student has activated their resources

5. The element that articulates everything: assessment

If one had to point to a single lever, it would be assessment. Not understood as a measuring instrument, but as the architecture of experience.

When assessment requires process, agency, reflection and tolerance of error, it pulls along with it the methodology, the classroom climate and the kind of student–teacher relationship. The backwash effect is the most powerful lever a school has to act on maturity without depending on the family or on the digital culture changing.

If assessment requires...	The student practises...	And develops...
A process documented in phases	Planning and self-regulation	Executive maturity
Agency in the project's decisions	Real responsibility	Cognitive autonomy
Explicit metacognitive reflection	Awareness of one's own learning	Emotional regulation
Tolerance of error as part of the process	Resilience in the face of failure	Resistance to frustration
Connection with the student's real questions	The experience of genuine purpose	Intrinsic motivation

5.1 Evidence from the International Baccalaureate and LOMLOE

The claim that assessment is the lever that articulates everything does not rest on pedagogical logic alone. It is supported by decades of international educational research on criterion-based assessment —Wiggins and McTighe (1998), Black and Wiliam (1998), Hattie (2009)— and by the convergence of those principles in reference programmes such as the International Baccalaureate (IB), present in more than 5,000 schools across 140 countries. MIRA does not apply the IB's logic: it shares with it the same research sources.

Positive backwash as an operating principle

The concept of positive backwash describes how the design of assessment conditions backwards everything that happens in the classroom: what the teacher teaches, how they teach it, and how the student studies and behaves. The IB recognises this principle as the foundation of its programmes: when assessment requires complex thinking, process and reflection, it pulls the methodology and the classroom culture towards those same demands. Criterion-based assessment is therefore not a grading technique: it is a mechanism for transforming the learning environment.

The principles of criterion-based assessment: shared, not copied

A school operating under LOMLOE cannot and should not replicate the IB programme —which has its own curricular structure, certification and specific authorisation requirements. What it can do is apply the principles of criterion-based assessment that educational research has documented —and that both the IB and LOMLOE have adopted because they respond to the same evidence. MIRA does not apply the IB's logic: it shares with it the same research sources.

That logic rests on five operating principles. First, public criteria known in advance: the student knows, before beginning the task, by what criteria they will be assessed and what descriptors define each

level of achievement. Second, assessment over accumulated evidence: the judgement is not built on a single test but on a set of evidence gathered throughout the process. Third, the teacher's professional judgement guided by descriptors: the grade is not the mechanical sum of scores but a reasoned decision by the teacher about the student's overall level of achievement. Fourth, student self-assessment as a constitutive part of the process: the student contrasts their own work with the criteria before submission, which develops metacognition and a sense of agency. Fifth, internal moderation between teachers coordinated by the stage lead: the team jointly calibrates how it applies the criteria to real student evidence, which turns criterion-based assessment into shared institutional culture rather than the discretionary practice of each teacher.

The global external moderation managed by the IB as an organisation is not replicable in a LOMLOE school. The internal moderation coordinated by the stage lead is not only replicable: it is a condition of quality and the mechanism that prevents criterion-based assessment from remaining a statement of intent with no coherent practical translation.

The effect on the FSMG factors

When this assessment logic is applied consistently, it acts directly on the four FSMG factors. The student who knows the criteria in advance and must accumulate evidence throughout the process trains delay of reward and self-regulation (factor 1). The one who receives criterion-based feedback instead of a global mark learns to interpret difficulty as information about their own learning and not as a verdict on capacity (factor 2). The one who self-assesses their work before submission develops emotional regulation and tolerance of error (factor 3). And the one who works on genuine questions with authentic products begins to build the experience that their effort has its own direction (factor 4: void of meaning).

Convergence with LOMLOE as a guarantee of compatibility

LOMLOE defines learning assessment as a process of identifying, gathering and analysing the evidence the student provides, in order to issue a value judgement based on pre-established criteria. Each assessment criterion is graded independently; instruments are the means, not the end; and continuous assessment replaces the single exam mark. This architecture is structurally identical to the criterion-based logic that educational research has documented for decades —and that both LOMLOE and the IB have adopted independently because it responds to the same evidence. It is not that LOMLOE followed the IB: both follow the research. The IB has been applying it with technical rigour and systematic moderation for more than five decades.

Criterion-based assessment operates in two directions simultaneously: it transforms the student and it transforms the teacher. Those who learn to apply criteria precisely, to moderate with colleagues and to ground their professional judgement in real evidence, teach differently. The teacher coherence the school needs as a structural condition is not built in abstract training sessions: it is built in the shared practice of assessing. That is the mechanism educational research has been documenting for more than fifty years —and that both the IB and LOMLOE have adopted as a normative architecture because the evidence supports it. A school that applies criterion-based assessment well is neither imitating the IB nor merely complying with LOMLOE: it is operating on the principles that underpin both.

6. Summary: what the school needs

A school that confronts student immaturity from within its own sphere of action needs six simultaneous—not alternative— conditions.

#	Condition	What it translates into
1	Deliberate cognitive training	Tasks with delay of reward, open problems, analytical reading
2	A culture of difficulty	Shared language, assessment of the process, a narrative of productive error
3	An emotional reference environment	Graded real-conflict situations, safe but not protected
4	Real student agency	Decisions with consequences, authentic projects, real audiences
5	Structural teacher coherence	Explicit team agreements, shared culture, not uniformity
6	Explicit work on meaning	Questions of purpose, projects linked to the student's identity, spaces for inner reflection on one's own learning

The school cannot change digital immediacy or family overprotection. It can, however, be the one space where the student systematically experiences the opposite: sustained effort, real consequences, genuine agency, emotional regulation and a search for meaning. That is enough to make the difference.

7. Putting it into practice in the school: the teaching–learning model

The two previous steps have established that FSMG is a real, documented and pedagogically addressable phenomenon, and that criterion-based assessment—with the IB as a tested benchmark and LOMLOE as the normative framework—is the lever that activates the response. The third step is concrete: how is all this articulated in the classroom, systematically, coherently and without the need for external accreditation?

The answer is the school's teaching–learning model. Its four conditions —Metacognition, Inner life, Resilience and Agency— are neither a new proposal nor an import from an external system. They are the direct pedagogical consequence of the analysis that precedes this document: the operational translation of what research, the IB and LOMLOE point to convergently as the conditions of mature learning.

7.1 The four conditions against the four FSMG factors

It would be tempting—and pedagogically incorrect—to establish a direct correspondence between each FSMG factor and a condition of the teaching–learning model. The four conditions do not each respond to one specific factor: they respond to all of them, from different angles and with different intensity. Metacognition trains the sustained attention that digital immediacy erodes, but it also builds the self-knowledge the void of meaning requires. Inner life works on emotional regulation, but it also reduces the dependence on the external adult that overprotection generates. Resilience counters the interpretation of effort as error, but it also trains the tolerance of delay that immediacy destroys. Agency generates the experience of purpose, but it also forces the self-regulation and real conflict that overprotection avoids.

The teaching–learning model is not a specific antidote for each FSMG factor: it is an architecture of experience that acts on all of them simultaneously and synergistically. That is precisely its power.

The following matrix reflects that multiple influence. ✓✓ indicates direct and primary influence; ✓ clear and documented influence; ① influence present but of secondary order.

FSMG factor	Metacognition	Inner life	Resilience	Agency
Digital immediacy → erosion of attention and self-regulation	✓✓	①	✓	✓
Family overprotection → dependence, low autonomy	✓	✓	✓	✓✓
Insufficient emotional regulation → avoidance of real conflict	✓	✓✓	✓✓	✓
Void of meaning → amotivation, affective disconnection	✓	✓✓	①	✓✓

7.2 What the model resolves that no single benchmark can

The IB has the assessment logic and the empirical evidence of more than five decades, but requires external accreditation and is not fully replicable in a LOMLOE school. LOMLOE prescribes criterion-based assessment and competence-based education, but does not provide an operational pedagogical model for the classroom that indicates how to do it. The school's teaching–learning model occupies exactly that space: it applies the criterion-based assessment principles the IB also applies, is fully compatible with LOMLOE, applicable without external accreditation, articulated with shared descriptors from ages 3 to 18.

	IB	LOMLOE	e-I model
Tested criterion-based assessment logic	✓	✓	✓
Applicable without external accreditation	—	✓	✓
Operational pedagogical model for the classroom	✓	—	✓
Vertical descriptors ages 3–18	①	✓	✓
Inner life as an explicit pedagogical condition	①	①	✓
Resilience as an explicit assessable condition	①	①	✓
Rooted in the school's own ethos	—	—	✓

e-I model: teaching–learning model.

7.3 The teaching–learning model as background architecture, not an add-on

The teaching–learning model is neither the import of an external system nor a pedagogical fad. It is the pedagogically grounded, legally compatible and ethos-coherent response to a problem this document has analysed with rigour. FSMG is not resolved with a one-off intervention or an attention protocol: it is resolved by systematically redesigning the learning experience. That is what the teaching–learning model is for: not as an add-on to the teacher's work, but as its background architecture.

8. The fault line to resolve: wellbeing and demand are not opposites

The framework set out in this document may raise a legitimate objection: if outside the school the student lives in an environment of greater permissiveness, immediacy and material achievement without effort, how is their wellbeing sustained within a school that demands agency, reflection, tolerance of error and perseverance? Does the school not become a place perceived as hostile and disconnected from their reality? This tension exists, and not resolving it turns the framework into a proposal of extractive demand—which produces exhaustion and disengagement—rather than generative demand, which produces real competence, pride in the process and sustained intrinsic motivation.

8.1 The difference that changes everything: demand with resource

Research on wellbeing in demanding learning contexts identifies precisely the variable that determines whether difficulty produces growth or exhaustion: the presence or absence of relational, cognitive and emotional resources to accompany the demand. Csikszentmihalyi documented that maximum wellbeing—the state of flow—does not appear when the task is easy nor when it greatly exceeds the student's competence: it appears exactly when the challenge is calibrated to the level of capacity available. Too much challenge without enough competence produces anxiety. Too much competence without challenge produces boredom. Wellbeing and effort are not opposites: they are co-dependent when the pedagogical design is well made.

Deci and Ryan add the complementary piece: the three basic psychological needs—autonomy, competence and relatedness—are simultaneously the conditions of deep learning and the conditions of wellbeing. They are not optional add-ons to pedagogical design: they are the mechanism by which sustained effort becomes satisfying rather than exhausting. A school that works on Agency (autonomy), Metacognition (perceived competence) and Inner life (connection with oneself and with others) is not setting wellbeing against demand: it is generating the conditions in which both are simultaneous.

8.2 The teacher as a scaffolding figure

Hattie identified, from the largest meta-analysis on learning ever conducted (more than 800 studies), that the factor with the greatest effect on student performance and wellbeing is neither methodology nor curricular design: it is the quality of the teacher–student relationship. A student who feels seen, respected and genuinely accompanied by their teacher tolerates much higher levels of demand without losing wellbeing, because the difficulty is perceived as confidence in their capacity, not as external pressure.

This implies that the teaching–learning model cannot be reduced to a system of demands without specifying the relational dimension that sustains them. The teacher who applies the criteria well also needs to be the one who accompanies the process, who makes visible the partial progress the student cannot yet see, who normalises error as a constitutive part of learning and not as a verdict on capacity. Without that relational layer, criterion-based assessment can become cold and the demanded agency can feel like abandonment.

8.3 Three conditions for demand to be sustainable

The student's wellbeing in a demanding school is protected by ensuring three conditions simultaneously. The first is relationship: someone who sees them, accompanies them and trusts their capacity. The second is perceived competence: the frequent, real experience that they can, that they progress, that effort produces something that belongs to them. Exhibitions of learning, projects with a real audience and rubrics that allow students to see their own progress are not pedagogical

decoration: they are the mechanism that sustains wellbeing in an environment of demand. The third is meaning: the student knows what what they do is for, and that connects them to something bigger than the mark.

When these three conditions are present, demand does not compete with wellbeing: it produces it. The tension between what happens inside and outside the school does not disappear, but it stops being a trap. The student begins to experience that what happens inside offers something the outside cannot: the satisfaction of having built something through real effort, something of their own. That experience, repeated systematically, generates a form of self-esteem that the instant gratification of the digital environment cannot produce, precisely because it has cost nothing.

8.4 Gradation as a design principle

An additional condition that the current framework does not make explicit enough: agency, reflection and tolerance of error cannot be installed all at once. They need a progression designed vertically, from Early Years through to Bachillerato, that increases the level of autonomy demanded as the student builds real competence. The verticality of the teaching–learning model—with its progressive self-assessment instruments from Learning Hands through to the checklist—is not just a technical assessment decision: it is the pedagogical embodiment of the principle of gradation. Demanding full agency from a primary student who has had no chance to practise it in intermediate steps does not produce maturity: it produces anxiety. Designing that staircase of growing autonomy, with decreasing scaffolding, is the specific task of the coordinated teaching team.

The right question is not whether the school can afford to be demanding while the environment is permissive. The right question is whether the school is designing the demand with the relational conditions, the gradation and the experiences of achievement that make it sustainable and, moreover, desirable. A student who experiences that they can, that they matter and that what they do has meaning does not need us to lower the bar: they need us to accompany them while they reach it.