

Self-efficacy as a core concept of TUA-DSE

1. Self-development and self-efficacy

People should learn to take responsibility for their own well-being, their competencies and their ability to act. Without self-efficacy, one cannot help others or the world effectively.

2. Contribution to the common good

Next follows engagement for other people and communities – locally as well as globally.

3. Responsibility for the planet

From this attitude arises a planetary perspective: the ability and motivation to contribute to the protection and regeneration of the planet.

Important:

The idea is **not** a linear hierarchy in the sense of “finish point 1 first, then point 2,” but rather a **reciprocal relationship**:

When people strengthen themselves, they can cooperate better and create positive impact for the world together.

So: Yes – the statement captures the core, as long as one understands that the three levels are interconnected and reinforce each other.

You:

Self-efficacy

In which conceptual contexts does self-efficacy play a role?

ChatGPT:

Self-efficacy is a key concept in many pedagogical, psychological, social and societal theories. It is linked to a wide range of concepts because it describes how strongly someone believes they can influence events and their own actions.

Here is a structured overview:

1. Psychology & learning research

Bandura's social-cognitive theory

Self-efficacy is one of Albert Bandura's central building blocks. It influences motivation, perseverance, emotions and learning behavior.

Motivation theories

- Self-determination theory (Ryan & Deci): competence as one of the three psychological basic needs.
- Attribution theory: how people explain success/failure affects their experience of self-efficacy.

Resilience research

Self-efficacy is a protective factor that helps people cope with stress, crises and burdens.

2. Pedagogy & didactics

Constructivist learning

Learning is more successful when people experience that they make progress through their own actions.

Transformative education / Global Citizenship Education

For societal change, learners need the belief that their actions are effective.

Inclusive and differentiated didactics

Self-efficacy is both a goal and a means to remove learning barriers.

3. Health promotion & social work

Salutogenesis (Antonovsky)

The ability to act effectively strengthens the sense of coherence and health.

Empowerment approaches

In social work, self-efficacy is essential to enable people to tackle problems independently.

4. Organizational development & leadership

Empowerment and participative leadership

Self-efficacy promotes engagement, innovation and taking responsibility.

Change management

People are more likely to embrace change when they feel capable of mastering it.

5. Sustainability, planetizenship & transformative systems

Especially relevant in this context:

- **Transformative learning (Mezirow, Sterling)**

Changing one's own perspectives requires the feeling of being able to act.

- **Regenerative cultures (Daniel Wahl)**

Self-efficacy is a prerequisite for people to take responsibility for social and ecological systems.

- **Planetary stewardship / Planetizenship**

Without belief in one's own effectiveness, it is unlikely that people will engage in sustainability and future-oriented projects.

Summary

Self-efficacy plays a central role in:

1. Psychological theories (Bandura, motivation, resilience)
2. Educational approaches (transformative education, inclusive learning)
3. Health promotion and social work (empowerment, salutogenesis)
4. Organizational and leadership concepts
5. Sustainability and future education (planetizenship, global citizenship)

Self-directed, self-responsible project work in the classroom

Compact presentation

Self-directed, self-responsible project work in the classroom

A compact, print-ready A4 page

1. Why this approach is important

Self-directed project work is one of the most effective methods for sustainably promoting creativity, self-efficacy, motivation and problem-solving ability. Learners work on real challenges, make their own decisions and take responsibility for processes and results.

2. Scientific foundation (short)

- Autonomy increases creativity – choices increase intrinsic motivation and promote original thinking.
- Project-based learning works – studies show that project-based learning develops creative and analytical skills more strongly than teacher-centered instruction.
- Self-efficacy arises through real tasks – those who develop solutions themselves have stronger belief in their own competence.
- Teacher as coach – structure, feedback and reflection support creative thinking processes without limiting freedom.
- Aligned with international education standards – 21st Century Skills, OECD Learning Compass 2030, UNESCO Futures of Education, ESD.

3. How it succeeds: Practical guidelines

1. Enable structured freedom

- Choice of topics, methods, forms of presentation
- Clear project phases: planning – research – implementation – presentation – reflection

2. Teacher as learning facilitator

- Ask open questions, give feedback
- Teach creativity techniques (brainwriting, perspective change, design thinking)

3. Make learning processes visible

- Portfolios, learning journals, documentation of ideas

4. Strengthen collaboration

- Clarify team roles
- Integrate peer feedback

5. Present results publicly

- Exhibitions, presentations, digital products, prototypes

4. Mini-evaluation (easy to implement)

- Creativity – short ideation tasks before/after the project (originality & diversity).
- Self-efficacy – short scale (e.g. “I find solutions even when things get difficult”).
- Product quality – criteria grid for originality, depth, problem-solving quality and reflection.

5. Conclusion

Self-directed, well-supported project work creates a learning environment that promotes creativity, motivation and sustainable learning equally. It is a key component of modern, future-oriented education.

Core statements on self-directed, self-responsible projects and creativity

Core statement (short)

Working in self-directed, self-responsible projects (e.g., project-/problem-based learning with high student autonomy) significantly promotes creativity compared to conventional instruction — many meta-analyses and reviews show positive effects. At the same time, current research does not say that it is the only method or always mandatory: effectiveness strongly depends on implementation, context and teacher support. AIMS Press +1

What the studies show (important findings)

1. PBL increases creative abilities

Meta-analyses and multiple individual studies report significant, sometimes medium to large effects of project-/problem-based learning on creative thinking and creative performance — especially in STEM subjects and well-implemented projects. AIMS Press +1

2. Autonomy/self-determination is a strong mechanism

Findings from Self-Determination Theory (SDT) show that autonomy support, competence development and social connectedness strengthen intrinsic motivation — and intrinsic motivation promotes creativity. SDT meta-analyses confirm consistent effects in educational settings. ScienceDirect +1

3. Teacher role and scaffolding are crucial

Autonomy does not mean “leave them alone”: research emphasizes the importance of autonomy-supportive teaching, clear goal setting, feedback, structure and occasional modeling. Without this support, the benefit decreases or unwanted effects occur. Frontiers +1

4. Context and moderators play a major role

Effects vary by grade level, subject, project duration, achievement requirements, class size and teacher competence. PBL is often more effective in higher grades and in subjects that allow inquiry-based learning. IJERE +1

5. Risks / “dark side” of autonomy

Autonomy can also lead to overload, off-task behavior or unequally distributed group engagement if poorly implemented. Therefore, monitoring, formative assessment and clear roles/responsibilities are needed. Frontiers

Direct answers to your question

- “Is this the approach that triggers the most creativity?”

Short answer: It is one of the most effective and most researched approaches. Many meta-analyses show that well-designed, autonomy-supportive project learning promotes creativity more strongly than purely teacher-centered instruction. AIMS Press +1

- “Does current science say you have to do it this way?”

Short answer: No — science strongly recommends it, but not dogmatically. Research emphasizes quality of implementation, teacher support and contextual fit. It is more like: if creativity is your goal, self-directed, well-designed projects are an evidence-based option — but they must be carefully planned and supported. ScienceDirect +1

Practical recommendations for schools/teachers

1. Combine autonomy with structure: freedoms in topic/methods + clear milestones, assessment criteria and timelines. MDPI
2. Teacher as coach: ask questions, give feedback, model creative strategies. SpringerLink
3. Formative assessment: interim feedback, peer review, reflection phases promote creative development. PMC
4. Build competencies: explicitly teach creative techniques (divergent thinking, design thinking, ideation). IJERE
5. Mitigate risks: distribute roles, observe group dynamics, support weaker learners. Frontiers

Short, citable list (most important sources)

- Meta-analysis: A meta-analysis of STEM project-based learning on creativity (Kwon et al., 2025). AIMS Press
- Review/Meta: Revisiting the effects of project-based learning on students (Chen, 2019). ScienceDirect
- SDT meta-analyses / overviews (Wang et al., 2024; Ryan et al., 2022). Self Determination Theory +1
- Review on opportunities and risks of autonomy in classrooms (Johansen et al., 2023). Frontiers
- Systematic guides / frameworks for good PBL implementation (Sánchez-García et al., 2025). MDPI

Self-directed, self-responsible projects in the classroom with emphasis on creativity

1. Objective

Self-directed, self-responsible project work demonstrably strengthens creativity, self-efficacy, motivation and problem-solving ability. The approach combines central principles of modern learning research and supports an active, independent learning culture.

2. Scientific foundation

Why does this approach particularly foster creativity?

- **High autonomy strengthens creativity**

When learners make decisions about topic, procedure and presentation form, intrinsic motivation increases — a central driver of creative thinking processes.

- **Project-based learning consistently shows positive effects**

Meta-analyses demonstrate: project learning more often leads to original ideas, better problem-solving strategies and higher creative output than teacher-centered instruction.

- **Self-efficacy as an amplifier**

Independent work in real problem situations strengthens the feeling: “I can do this!” — an important prerequisite for creative thinking.

- **Teacher as supportive guide**

Structure, reflection, feedback and open questions foster creativity without limiting freedom.

- **Alignment with modern educational goals**

The approach corresponds to international standards such as 21st Century Skills, OECD Learning Compass 2030, UNESCO Futures of Education and ESD.

3. Implementation in practice (short guide)

1. Enable autonomy – in a structured way

- Offer choices (topic, methods, presentation).
- Define clear project phases: planning – research – implementation – presentation – reflection.

2. Teacher as coach

- Ask open, thought-provoking questions.
- Teach creativity techniques (brainwriting, perspective change, design thinking).
- Regular short check-ins.

3. Make learning processes visible

- Use journals, portfolios or learning logs.
- Document idea collections and development steps.

4. Structure collaboration

- Assign roles (e.g., research, moderation, documentation).
- Build in peer feedback.

5. Publish results

- Show presentations, exhibitions or digital products.
- A real audience increases motivation and quality.

4. Mini-evaluation (easy to implement)

1. Creativity development

- Short ideation tasks before/after the project.
- Assessment of originality and diversity of ideas.

2. Self-efficacy

- 5–7 short scale items (e.g., “I find solutions even when it is difficult”).

3. Product quality

- Criteria grid for originality, depth, problem-solving quality and reflection.

5. Conclusion

Self-directed, well-supported project work is one of the most effective approaches for promoting creativity in the classroom. It combines motivation, engagement, self-efficacy and subject learning — and corresponds to the current state of educational research.