Case Study Context:

- **Institution**: DEF University
- **Course**: Advanced Project Management in STEM
- **Target Group**: 30 undergraduate students in their final year of study

Objectives:

1. **Enhance student engagement** in the Advanced Project Management course.
2. **Foster intrinsic motivation** among students.
3. **Improve collaborative skills and creativity** through project-based learning.

1. Relatedness

Strategy: Create a supportive learning community to encourage collaboration.

Actions:

- Form diverse project teams, ensuring students from various disciplines (engineering, design, business) collaborated on real-world projects.
- Organise regular team-building activities, such as icebreakers and collaborative workshops, to strengthen relationships among students.
- Invite alumni and industry professionals for networking events, allowing students to connect with individuals in their field.

Outcome: Students report feeling more connected to their peers and instructors. The collaboration among diverse disciplines fostered a sense of community, enhancing engagement.

3. Mastery

Strategy: Focus on skill development and continuous improvement.

Actions:

- Implement a mentorship program where students received feedback from faculty and industry professionals throughout their project development.
- Offer workshops on relevant skills, such as effective project management techniques, presentation skills, and teamwork strategies.
- Create opportunities for peer reviews, where students could provide constructive feedback to one another, fostering a culture of continuous learning.

Outcome: Students show significant improvement in their project management and teamwork skills. Assessments indicated that 80% of students felt more competent in their abilities by the end of the course.

2. Autonomy

Strategy: Empower students with choices in their learning process.

Actions:

- Allow students to select their project topics based on personal interests and industry relevance, increasing their investment in the work.
- Provide options for how to present their projects (e.g., written reports, presentations, digital prototypes), catering to different learning styles and preferences.
- Encourage students to set personal goals for their projects and reflect on their learning journey throughout the semester.

Outcome: Students express greater ownership of their learning, with 85% indicating they were more motivated to engage in projects due to the autonomy offered.

4. Purpose

Strategy: Connect learning to real-world applications and personal values.

Actions:

- Engage students in projects that addressed current industry challenges or community needs, emphasising the relevance of their coursework.
- Organise guest lectures from industry leaders who discussed the importance of project management in STEM fields and its societal impact.
- Encourage students to reflect on how their projects could contribute to social good and innovation.

Outcome: Students report feeling a deeper sense of purpose in their learning, with many expressing excitements about their ability to apply their knowledge to real-world challenges.

Results and Impacts

- **Increased Engagement**: Student attendance and participation in class activities improved significantly, with a 30% increase in active participation during discussions and group work.

- **Enhanced Motivation**: Surveys indicated that 90% of students felt more motivated and engaged due to the autonomy and purpose emphasized in their projects.

- **Improved Skills**: Final project evaluations showed that 85% of students exceeded expectations in creativity, problem-solving, and teamwork.

- **Positive Feedback**: Students provided positive feedback about the collaborative nature of the course and its relevance to their future careers.