Pilot Course Curriculum and Intervention Plan for Computer Animation (ULE)

"Improving the quality and sustainability of learning using early intervention methods based on learning analytics"

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1 General course information

Course name	Computer Animation
Institution	University of León
Course level	Undergraduate
Teaching model	In-person
Course learning objectives	▪ Understand and apply 3D design, modeling and animation techniques. ▪ Know how to approach all stages of an audiovisual production project in real contexts. ▪ Develop problem-solving skills with initiative, decision-making and creativity in animation projects. ▪ Encourage teamwork skills by collaborating effectively on group projects.

2 Motivation and purpose (Why)

Goal of the inquiry	
What do you want to learn about the teaching and learning process?	Assess students' level of engagement in theoretical and practical activities. Analyze the impact of group work on learning and collaboration. Identify how early intervention methods based on learning analytics can improve academic performance. How do students interact with learning materials and activities when using 3D editing software? Is regular engagement correlated with better results in group projects? Which learning resources are most effective for students?

3 Defining more precisely what to explore (What)

Specific questions of interest	
Key inquiry questions	1. How engaged are students in practical and design activities? 2. How does group work affect the development of individual competencies? 3. What impact does personalized feedback based on learning analytics have?
Data sources	Activity logs from the learning management system (Moodle). Submissions of group projects. Weekly self-regulation (SRL) surveys. Student feedback and peer assessment of results.

4 Data collection strategy (How)

Data sources	- Learning management tools (LMS). - Blender: tracking interactions and progress in 3D design. - Weekly SRL surveys. - Telegram (or Discord).
Data aggregation	Data will be collected in xAPI format and integrated into Learning Locker either directly from the LMS plugin or through the csv2xAPI tool developed within the ISILA project

Detailed methods for data collection

Week#	Topic	Learning activities and materials	Data source(s) and collection method(s)
1	Introduction to Animation	Lecture and initial exercise in Blender	Attendance and participation logs
2	Modeling Basics	Introduction to polygonal modeling; creating basic shapes	Logs of interactions in Blender and LMS
3	Advanced Modeling	Creating detailed objects with extrusion and subdivision techniques	Logs of interactions in Blender and LMS
4	Group Modeling Project	Collaborative modeling of an environment or complex object	Group progress reports and LMS activity
5	Materials and Textures Basics	Applying basic materials and using procedural textures	Assignment submissions and SRL surveys
6	Advanced Texturing	Creating custom UV maps and hand-painted textures	Assignment submissions and SRL surveys
7	Lighting Fundamentals	Introduction to light types; setting up basic lighting in a scene	Analysis of results and class participation
8	Cameras and Rendering Basics	Configuring cameras; rendering test scenes	Analysis of results and class participation

9	Animation Basics	Animating objects and learning keyframing techniques	Evaluation of group progress and Telegram interactions
10	Character Rigging	Rigging a basic character and creating simple animations	Evaluation of group progress and Telegram interactions
11	Advanced Animation	Adding secondary motion and refining animations	Evaluation of group progress and Telegram interactions
12	Animation Presentation	Preparing animations for presentation; receiving feedback	Evaluation of group progress and Telegram interactions
13	Final Project Work	Group work on final animation project	Group and individual feedback
14	Final Project Refinement	Refining animations and finalizing project deliverables	Group and individual feedback
15	Final Presentation	Project showcase and peer review	Group and individual feedback

5 Data analysis and interpretation (So What)

Sense making and interpretation context	Use dashboards to visualize engagement levels. Analyze correlations between activities and learning outcomes. Identify students with low participation levels for personalized interventions.

6 Interventions plan (Now What)

Potential interventions	▪ Group-level: Add more gamified activities to increase engagement. Extend deadlines in case of general difficulties. ▪ Individual-level: Offer personalized tutoring and additional support for at-risk students. ▪ Design Improvements: Simplify less effective learning resources and add interactive examples.