Open Educational Resources – Learning Material Development (incl. use of GenAI)

This comprehensive professional development workshop equips higher education faculty and teacher trainers with cutting-edge strategies for developing interactive learning materials. Through practical application using ''Digital Pedagogy Fundamentals'' as our exemplar module, participants will master a systematic 6-step workflow that combines the power of GenAI tools with LiaScript's interactive capabilities.

Workshop Focus: Atlantic Technical University Galway Campus

Example Module: Digital Pedagogy Fundamentals

Core Tools: ChatGPT • Perplexity • Claude • GitHub • Gamma.app

🎯 Goals

Understanding OER Enhancement

Discover how LiaScript and GenAI can revolutionise Open Educational Resource development in higher education contexts, making content creation more efficient whilst maintaining academic rigour.

Master AI-Enhanced Workflow

Learn our proven 6-step process for creating interactive learning materials that engage diverse student populations whilst accommodating varying technical expertise levels.

Hands-On Experience

Engage in practical creation using "Digital Pedagogy Fundamentals" as our working example, experiencing each step of the development process firsthand.

Target Challenges We're Addressing

- Faculty struggling with time-intensive content creation for diverse student needs
- Need for accessible, inclusive learning materials meeting Universal Design for Learning principles
- Bridging traditional teaching methods with digital pedagogical approaches
- Scalable content development accommodating varying technical expertise levels

🏛️ The Higher Education Teaching Challenge

Current Situation in Higher Education

Common Faculty Challenges:

- Increasing diversivication of learning needs and backgrounds
- Limited time for developing interactive, accessible teaching materials
- Pressure to integrate digital technologies meaningfully into curriculum
- Need for multilingual and culturally inclusive content
- Balancing research responsibilities with innovative teaching practices

Institutional Pressures:

- Quality assurance requirements for programme delivery
- Digital transformation mandates post-COVID
- Student expectations for engaging, flexible learning experiences
- Need for evidence-based pedagogical approaches
- Sustainability and cost-effectiveness in resource development

💡 LiaScript + GenAI Solution

Why This Approach for Higher Education?

- **Text-Based Creation:** Academics can leverage existing writing skills
- **Interactive Elements:** Enhance student engagement without complex coding
- **Multi-Format Output:** Supports diverse learning preferences and accessibility needs
- **Version Control:** Academic rigour in content development and collaboration
- **Open Source Ethos:** Aligns with educational values and budget constraints
- **Pedagogical Integration:** Embed evidence-based teaching strategies directly into content

🔧 Our 6-Step AI-Enhanced Workflow

01

ChatGPT for Pedagogical Structure

Generate learning objectives and evidence-based instructional design frameworks that align with professional teaching standards and accommodate diverse learning styles.

02

Perplexity for Academic Research

Validate current educational research and best practices, ensuring content reflects the latest pedagogical developments and maintains academic credibility.

03

Claude for LiaScript Creation

Transform validated content into interactive markdown format with pedagogical scaffolding that enhances student engagement and learning outcomes.

04

GitHub Repository Setup

Enable academic collaboration and version control through structured repositories that support peer review and institutional quality assurance processes.

05

Multi-Format Export Generation

Create accessible PDFs and LMS-compatible packages that meet WCAG standards and integrate seamlessly with institutional systems.

06

Gamma.app Presentations

Develop conference-ready materials and workshop presentations that communicate your pedagogical innovations to academic communities.

Time Investment: Approximately 4-6 hours total for a complete learning module, representing significant efficiency gains compared to traditional development approaches.

📝 Step 1: ChatGPT for Pedagogical Structure

Goal: Generate Basic Learning Design

Live Demonstration

Let's create our Digital Pedagogy module structure together, experiencing the process in real-time!

Academic Module Structure

Generate comprehensive outlines grounded in established pedagogical frameworks such as TPACK, UDL, and Bloom's Taxonomy.

> ### Sample Prompt Template: Academic Module Structure
>
> You are an expert in higher education pedagogy and instructional design, specialising in teacher training programmes.
>
> Create a comprehensive module outline for "Digital Pedagogy Fundamentals" targeted at teacher trainers and higher education faculty who need to integrate digital technologies meaningfully into their teaching practice.

Expected Output Structure

1. Theoretical Foundations of Digital Pedagogy
2. Technology Integration Models (TPACK Framework)
3. Universal Design for Learning in Digital Environments
4. Assessment in Digital Learning Contexts
5. Creating Inclusive Digital Content
6. Student Engagement Strategies Online
7. Reflective Practice and Continuous Improvement

🔍 Step 2: Perplexity for Academic Research

Goal: Validate Current Educational Research

Academic Validation Process

Ensure our content reflects the latest pedagogical research by systematically validating theoretical frameworks, teaching strategies, and technological approaches against current higher education literature.

Research Quality Assurance

Incorporate peer-reviewed sources, align with professional teaching standards, and ensure contextual relevance for Irish and European higher education frameworks.

Key Areas for Research Validation

- Latest pedagogical research on digital learning effectiveness
- Current accessibility standards (WCAG 2.1, EN 301 549)
- European higher education digital competence frameworks
- Post-pandemic shifts in educational technology adoption
- Evidence on student engagement in hybrid learning environments

> ### Sample Research Validation Prompt
>
> I'm developing a professional development module on "Digital Pedagogy Fundamentals" for higher education faculty. Please validate and enhance the following content with current educational research, specifically verifying alignment with higher education teaching standards and identifying recent research supporting the pedagogical approaches mentioned.

🤖 Step 3: Claude for LiaScript Creation

Goal: Transform Content into Interactive Learning Experience

→ Interactive Element Integration

Convert validated module content into comprehensive LiaScript format with pedagogically sound interactive elements including reflection prompts, knowledge checks, and collaborative activities.

→ Accessibility Enhancement

Include text-to-speech functionality, proper academic navigation, and Universal Design for Learning principles to ensure inclusive access for all learners.

→ Higher Education Context

Ensure all content is appropriate for adult learners, incorporating opportunities for reflection on teaching practice and professional development.

Sample LiaScript Structure Preview

```
# Digital Pedagogy Fundamentals

## Session 1: Theoretical Foundations

--{{0}}--
Welcome to Digital Pedagogy Fundamentals. This module is designed
for higher education faculty and teacher trainers.

### Self-Reflection Activity
Consider a recent teaching session you delivered. How did you:
- Engage students with the content?
- Assess their understanding?
- Accommodate different learning styles?
```

📂 Step 4: GitHub Repository for Academic Collaboration

Goal: Enable Scholarly Collaboration and Version Control

Repository Structure

Organise educational materials in a systematic, scholarly approach that supports peer review, version control, and institutional collaboration.

Academic Collaboration

Enable cross-institutional partnerships, peer review processes, and community-driven improvement of educational resources.

Recommended Repository Structure

```
digital-pedagogy-fundamentals/
├── README.md
├── modules/
│   ├── session-01-foundations.md
│   ├── session-02-tpack.md
│   ├── session-03-udl.md
│   └── session-04-assessment.md
├── resources/
│   ├── readings/
│   ├── templates/
│   └── multimedia/
├── assessments/
│   ├── rubrics/
│   └── portfolios/
├── exports/
│   ├── pdf/
│   ├── scorm/
│   └── presentations/
└── collaboration/
    ├── peer-review-guidelines.md
    └── contribution-templates.md
```

Benefits for Academic Practice

- **Scholarly Version Control:** Track pedagogical improvements and maintain academic integrity
- **Open Educational Resources:** Creative Commons licensing for broad educational impact
- **Institutional Integration:** Align with quality assurance and professional development frameworks

📄 Step 5: Multi-Format Outputs for Educational Contexts

Goal: Support Diverse Learning and Institutional Needs

Accessible PDF Export

Generate WCAG 2.1 compliant PDFs with proper heading structure, alt text, and print-friendly formatting for offline study and portfolio evidence.

LMS Integration Packages

Create SCORM 2004 packages, Moodle backups, and Canvas Commons materials for seamless institutional system integration.

Quality Assurance Testing

Ensure accessibility compliance, cross-platform functionality, and educational effectiveness through systematic validation processes.

Automated Academic Publishing Workflow

```
# GitHub Action for educational exports
name: Academic Content Publishing
on:
  push:
    paths: ['modules/**/*.md']
jobs:
 academic-export:
  runs-on: ubuntu-latest
  steps:
  - uses: actions/checkout@v2
  - name: Generate Accessible PDF
    run: |
      pandoc modules/*.md -o exports/pedagogy-module.pdf \
      --pdf-engine=xelatex --include-in-header=accessibility.tex
  - name: Create SCORM Package
    run: |
      liascript-exporter --scorm modules/ exports/scorm/
  - name: Validate Accessibility
    run: |
      pa11y-ci exports/
```

Technical Support: Automated workflows reduce manual effort whilst ensuring consistent quality and accessibility standards across all output formats.

🎨 Step 6: Professional Presentations with Gamma.app

Goal: Create Conference-Ready Materials

1 Academic Conference Structure

Develop presentations following scholarly conference standards, including theoretical frameworks, methodology, results, and implications for practice.

2 Institutional Branding

Maintain Atlantic Technical University visual identity whilst incorporating educational theory citations and evidence-based practice emphasis.

3 Multiple Audience Adaptation

Create versions for educational developers, faculty researchers, and institutional leadership, each emphasising relevant aspects of the methodology.

Presentation Strategy for Academic Audiences

For Educational Developers

- Emphasise pedagogical theory and evidence base
- Highlight scalability and institutional impact
- Show integration with existing faculty development programmes
- Demonstrate measurable learning outcomes

For Faculty Researchers

- Focus on methodology and replicability
- Present data on efficiency gains and learning effectiveness
- Discuss implications for open educational practices
- Highlight opportunities for educational research collaboration

🎯 Possible Training Activity

Creating a Pedagogy Module

ChatGPT Pedagogical Structure

Open ChatGPT and use our educational design prompt to generate the module outline for "Digital Pedagogy Fundamentals".

Perplexity Academic Research

Take the ChatGPT output and validate it using current educational research, ensuring academic rigour and evidence-based approaches.

Claude LiaScript Development

Convert one complete session into interactive LiaScript format with pedagogical scaffolding and engagement features.

GitHub Academic Repository

Set up a collaborative repository structure supporting peer review, version control, and institutional sharing.

Multi-Format Export Testing

Generate accessible PDFs and LMS-compatible packages, testing functionality across different platforms.

Conference Presentation Creation

Develop presentation materials suitable for sharing at educational technology conferences and institutional meetings.

Reflection Questions for Educators

> After completing the activities, consider:
>
> - How does this workflow align with your current content development practices?
> - What barriers might exist in your institutional context?
> - How could you adapt this approach for your specific discipline or student population?
> - What additional pedagogical considerations are important for your context?

📊 Implementation Strategy for Higher Education

Phase 1: Faculty Pilot Programme (Semester 1)

Launch with 3-5 volunteer faculty from different disciplines, focusing on high-impact, reusable content such as research methods and critical thinking modules. Integrate seamlessly with existing professional development programmes.

Phase 2: Departmental Adoption (Semester 2-3)

Expand to department-level implementation whilst training educational developers and learning technologists. Establish robust peer review and quality assurance processes that maintain academic standards.

Phase 3: Institution-wide Integration (Year 2)

Roll out comprehensively to all schools and departments, integrating with promotion and tenure processes for teaching excellence. Establish communities of practice and ongoing support mechanisms.

Success Metrics and Evaluation

85%

Faculty Engagement

Target participation rate in professional development activities related to innovative teaching methodologies.

40%

Content Reuse

Percentage increase in sharing and adaptation of educational materials across departments and institutions.

25%

Time Efficiency

Reduction in content development time whilst maintaining or improving educational quality and student outcomes.

🔧 Templates and Resources for Educators

Academic Planning Templates

1

Module Planning Template

```
# Module: [Subject Area]
**Target Audience:** [Faculty/Student Level]
**Learning Framework:** [TPACK/UDL/Constructivism etc.]
**Duration:** [Contact Hours + Self-Study]

**Learning Outcomes:**
1. [Cognitive Level - Knowledge/Comprehension/Application]
2. [Skills Development]
3. [Professional Practice Integration]

**Assessment Strategy:** [Formative + Summative approaches]
**Accessibility Considerations:** [UDL principles applied]
```

2

Quality Assurance Checklist

- Alignment with professional teaching standards verified
- Accessibility compliance (WCAG 2.1) confirmed
- Peer review process completed
- Learning outcomes measurable and achievable
- Multi-modal content options provided

Educational Technology Resources

Essential Documentation

- LiaScript Educational Documentation
- Universal Design for Learning Guidelines
- European Standards for Digital Competence

Academic Resource Library

- Educational Research Prompt Templates
- Pedagogical Framework Implementation Guides
- LiaScript Academic Examples Repository
- Higher Education GitHub Best Practices

Advanced Features for Higher Education

Enhanced Pedagogical Interactivity

Adaptive Learning Paths

Implement content branching based on prior knowledge assessment, allowing personalised learning experiences that accommodate diverse student backgrounds and learning speeds.

Collaborative Annotation

Integrate peer learning and discussion features that foster academic discourse and collaborative knowledge construction among students.

Learning Analytics

Incorporate progress tracking and intervention points that provide data-driven insights for both educators and learners about engagement and achievement.

Multi-modal Content

Support diverse learning preferences through integrated text, audio, visual, and interactive elements that enhance accessibility and engagement.

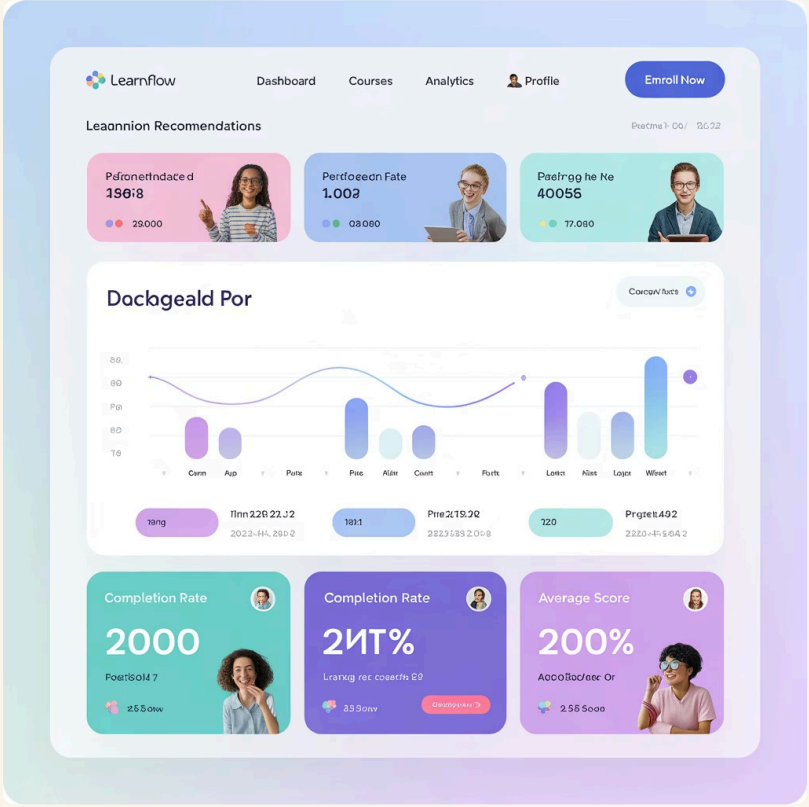
Institutional Scaling Considerations

Academic Quality Assurance Framework

- Establish peer review processes for AI-generated content validation
- Align with institutional teaching and learning strategies
- Create comprehensive guidelines for ethical AI use in education
- Plan systematic accessibility compliance and inclusive design implementation

Professional Development Integration

- Connect to continuing professional development frameworks
- Support evidence portfolios for teaching excellence recognition
- Facilitate communities of practice around innovative pedagogy
- Provide ongoing technical and pedagogical support mechanisms



❓ Q&A and Discussion for Higher Educators

Common Academic Questions

"How do we ensure academic rigour whilst using AI-assisted content creation?"

The 6-step workflow includes multiple validation steps and peer review processes that maintain scholarly standards whilst improving efficiency. Faculty expertise guides the process throughout, with AI serving as a pedagogical design tool rather than content generator.

"What about academic integrity and originality in AI-generated educational content?"

AI functions as a pedagogical design tool supporting structure and interactivity, whilst faculty expertise drives content creation. All materials undergo peer review and validation processes that ensure originality and academic integrity.

"How does this align with our quality assurance and accreditation requirements?"

This approach strengthens quality documentation through version control, peer collaboration, and evidence-based teaching practices. It supports rather than replaces existing quality assurance frameworks.

Discussion Topics for ATU Context

Strategic Considerations

- How can this approach support ATU's strategic goals for innovative teaching excellence?
- Which specific disciplines or programmes would benefit most from this systematic methodology?
- How can we integrate this with existing Moodle and educational technology infrastructure?
- What professional development support would faculty require for successful adoption and implementation?

Thank You for Participating!

Ready to Transform Higher Education?

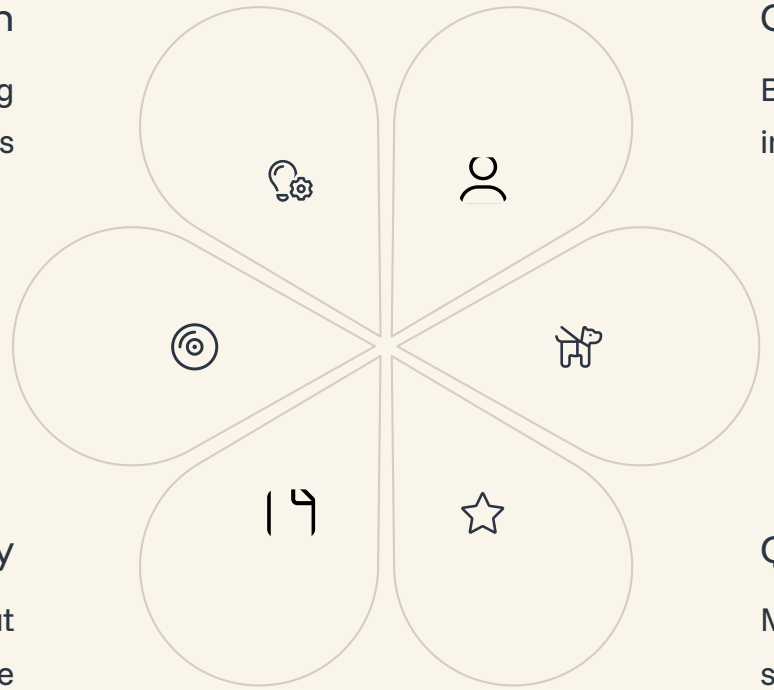
Through innovative, AI-enhanced Open Educational Resources, we can revolutionise how we create, share, and deliver educational content whilst maintaining the academic rigour and pedagogical excellence that defines higher education.

Innovation

Embrace cutting-edge tools whilst preserving educational values

Collaboration

Build communities of practice across institutions



Impact

Measure and improve student learning outcomes

Accessibility

Create inclusive learning experiences for all students

Efficiency

Streamline content creation without compromising excellence

Quality

Maintain academic standards through systematic approaches

> ### Final Reflection for Educators
>
> *What will be your first module topic, and how will you adapt this workflow to meet your students' specific learning needs and your disciplinary context?*