MUHAMMAD TAYYAB ILYAS

EDTECH AI PRODUCT ENGINEER | AI Learning Products | LLM Evaluation | Product Integration

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PROFESSIONAL SUMMARY

EdTech AI product engineer and PhD researcher with 10+ years across education and technology. Builds evidence-informed AI learning products from user research and pedagogical requirements through architecture, LLM evaluation, enterprise integration, implementation, deployment, and educator validation. Combines curriculum and assessment expertise, digital-competence research, instructional design, and hands-on engineering across learning, automation, and AI media systems.

CORE EXPERTISE

EdTech Product: Product discovery, learning-platform requirements, curriculum alignment, assessment workflows, teacher tools, school dashboards, user validation

AI Product Engineering: LLM integration, agentic workflows, multi-model comparison, evaluator-based assessment, structured outputs, feedback systems, responsible adoption

Enterprise and Media Integration: REST APIs, MCP, n8n, WhatsApp, email/calendar services, databases, transcription, FFmpeg, Remotion, Docker workflows

Learning and Research: Instructional design, digital competence, learning analytics, mixed methods, qualitative analysis, teacher development, research-to-product translation

PROFESSIONAL EXPERIENCE

Founder and CTO - PakEdX | Pakistan / Remote | Since 2022

- Created an AI-powered education platform for curriculum-aligned lesson planning, quiz generation, personalized learning, and school-level academic workflows.
- Converted teacher and school-leadership needs into product requirements, user roles, generation workflows, assessment features, reporting, and deployment priorities.
- Led the product lifecycle across discovery, pedagogical design, AI integration, application development, infrastructure, testing, educator feedback, and training.
- Designed for practical constraints in Pakistani education, including Urdu support, print-oriented use, affordable delivery, and school implementation.

PhD Researcher - Educational Technology - Universitat Autònoma de Barcelona (UAB) | Barcelona, Spain | Since 2022

- Study university teachers' pedagogical digital competence and the integration of technology and AI into higher-education teaching practices.
- Designed and executed a mixed-methods study with 127 survey responses and 32 interviews, combining statistical analysis with iterative thematic coding.
- Investigate barriers, support strategies, assessment practices, and institutional conditions that shape meaningful technology adoption.
- Translate findings into evidence-based product, training, and implementation recommendations for educators and institutions.

Independent AI Product and Solutions Engineer - AI Product Portfolio | Barcelona, Spain | Since 2024

- Built and deployed AI products spanning multi-agent development, multi-LLM evaluation, voice assistants, research workflows, local speech tools, reference management, and transcript-first video editing.
- Developed reusable integrations across LLM APIs, MCP, n8n, WhatsApp, email, calendar, web search, databases, and self-hosted Linux infrastructure.
- Created evaluator-based response-comparison workflows and AI media pipelines using transcription, FastAPI, Remotion, FFmpeg, PostgreSQL, background processing, and Docker.

Assistant Education Officer (Contract) - District Education Authority, Gujranwala | Pakistan | 2017 to 2022

- Supported academic monitoring, curriculum implementation, teacher development, school coordination, and improvement activities across assigned public schools.
- Worked with teachers, school leaders, and administration to identify implementation gaps and communicate actionable support.
- Applied classroom and system-level understanding to the later design of teacher-facing AI and EdTech products.

Teacher and Instructional Practitioner - Public Education Sector | Pakistan | 2013 to 2017

- Delivered classroom teaching and contributed to instructional planning, assessment, and learner support.
- Built practical understanding of teacher workload, resource limitations, curriculum requirements, and technology-adoption barriers.

SELECTED EDTECH AND RESEARCH PRODUCTS

PakEdX | AI lesson planning, assessment, school workflows | pakedx.com
Teacher-centered platform generating curriculum-aligned lesson plans and quizzes, with role-based workflows for teachers and school leadership. Product decisions are informed by instructional design, affordability, local language needs, and classroom validation.

CAITA - Computer-Assisted Iterative Thematic Analysis | Python, Streamlit, Pandas | tayyabilyas.streamlit.app
Research tool supporting a three-stage qualitative-analysis workflow with structured coding, Excel exports, and transparent researcher control. Published with DOI 10.5281/zenodo.17474907.

AI_Teacher | Python, Flask, scikit-learn, NLP | github.com/MuhammadTayyabIlyas
AI application that generates, manages, and grades mathematics problems and provides personalized feedback to learners.

RefLib | JavaScript, embeddings, vector search | tayyabcheema.com
Reference-management system created for doctoral research, organizing 590+ sources with client-side semantic search and citation-tool exports.

LoopCodeLab | Agentic AI product development | loopcodelab.com
Multi-agent build platform used to turn product concepts into working software through planning, parallel implementation, review, Git-based integration, and deployment.

RESEARCH, PUBLICATION AND FUNDING

- Doctoral research: Pedagogical digital competence of university teachers and technology integration in higher education, Universitat Autònoma de Barcelona.
- Accepted with minor revisions: "From Technical Literacy to AI-Integrated Pedagogy: A Scoping Review of Digital Competence Frameworks for Higher Education (2000-2026)," The Online Journal of Educational Technology, July 2026 issue.
- Project lead: "AI-Supported Lesson Planning for Teacher Education: A Capacity-Building Pilot at the University of Gujrat" - UAB Fons de Solidaritat grant, EUR 1,500, 2026.
- CAITA software publication: DOI 10.5281/zenodo.17474907.

TECHNICAL AND PRODUCT SKILLS

AI and Evaluation: OpenAI, Anthropic and Gemini APIs, agentic workflows, multi-LLM orchestration, LLM-as-a-judge, response comparison, MCP, structured outputs

Product and Learning: Product discovery, user stories, instructional design, curriculum alignment, assessment design, learning analytics, teacher training, implementation planning

Integration, Media and Deployment: n8n, REST APIs, WhatsApp, email/calendar APIs, PostgreSQL, Redis, FastAPI, React, Remotion, FFmpeg, Docker, Ubuntu, Nginx

Research and Analytics: Mixed methods, survey design, interviews, thematic analysis, Pandas, NumPy, scikit-learn, Jupyter, evidence-based product decisions

EDUCATION

PhD, Educational Technology - Universitat Autònoma de Barcelona (UAB) | Since 2022
MSc, Information Technology - University of Sargodha | 2015-2017
BSc, Physics and Mathematics - University of Education, Lahore

LANGUAGES

Languages: Urdu - Native | English - Professional proficiency | Spanish - Basic (A2)