How future multimedia will augment student engagement, interaction, collaboration and student engagement.

Derek Woodgate
“One man’s magic is another man’s engineering”

– Robert Heinlein
• 5 years – 22 PhD, 64 masters
• Domain through Futures Studies
• 15 modules each
• Blended
• Weeklong workshop in middle
Learning in the “Innovation Age”: The Living Learning System
The Living Learning System - 2025

How is it different from the present?

**Present**
- Classroom dominates
- Non-integrated curricula
- Traditional subject baseline
- Tests – single institution
- Teachers
- Institutionalized
- Authoritarian Teacher centered
- Academic book only
- 2D materials
- Limited experiential learning

**Future (2023-2025)**
- Fluid learning environments
- Integrated, micro-modules, pathways
- Future work-life needs
- Micro-certs, multi-institution
- Human mentors, robots
- Edu-enterprises, connectors, consortia
- Student-centered
- AI knowledge integrators
- 3D/4D, AR, VR and virtual overlays...
- Simulation, maker spaces, collaborative hubs
Where do we start?

• Structuring course and mapping content?
• How you will assess/evaluate?
• Who are the students?
• Learning goals/outcomes?
• Pedagogical considerations?
• The optimized environment?
• Support tools?
• How to optimize student engagement/mastery?
Beyond Siemens; Rotherham and Willingham

Living Learning - Emerging skill repertoire

- Sense making
- Social/emotional intelligence
- Virtual collaboration
- Transmedia literacy
- Computational thinking
- Transdisciplinarity
- Cognitive interaction
- Domain expertise
- Cross-cultural competency
- Innovation & design thinking
- Social-motivated creativity
- Novel & adaptive thinking
Understanding the emerging learner

- Enhanced human potential
- Multiple identities
- New anchors
- New metaphors, symbols and signifiers
- Personal value
- Learning as lifestyle
Group cohesion

Learning alternative thinking tools

Changing perspectives

Open communication

Underlying learner platforms

Each student learns to own the strategy

Own story & relevance

Updating competency and contribution

Accumulated knowledge acquisition
The Living Learning System
Integrative design model
The Living Learning System

*Integrative design model*

- Constructive alignment with F2F/Digital
- Multimedia-based accelerated learning
- Decentralized systems thinking & concept redefinition
- Experiential-Kinetic learning
- Cognitive and social presence
- Personal ambience & embodiment
- Self-organizing/real-time concept building
- New spatial narratives
- Real world simulation

Optimizing design, content, interaction, engagement and implementation
The key course development pillars

- Sensory augmentation
- Multimedia inputs and outputs
- Self-evolving course
- Experiential learning
- Leverage existing student skills
- Any format delivery
- Key proof points
- Context-relevant learning environments & styles
Course structure: The future of learning - 2025

Domain elements

Science of foresight

Real-world future outcome
connecting pedagogy and technology

- Exploring the future
- Creating the future
- Implementing the future

Design brief for a curriculum of choice - 2025
Course Objectives

Rethinking learning and tech
Foresight process and methods
Future landscape/scenarios
Alternative thinking tools

Develop a curriculum design for a course you want to teach in 2025
Competency-based assessment

Grading points
Creativity and originality: 25%
Contribution to future course design: 10%
Future focus: 20%
Analysis, reflection and application: 20%
Depth and breadth of content: 15%
Social intelligence: 10%

Students learning xAPI
The Living Learning System

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  - & embodiment
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Optimizing interaction, engagement and collaboration
Applying the integrative design model

Cognitive and social presence

Personal ambience & embodiment
Creating engagement through “personal ambience”

Harmonizing positive and negative emotions

Balancing novelty and complexity with existing skills

Derek Woodgate: The Sense event (2012)
An interactive/group learning climate

- Sense of creating and contributing to the future
- Open discourse and debate – teams of mixed skills
- Studio student to student interviews
- Testing and sharing feedback on learning tools
- A learning narrative built by students around four elements, namely:
  - Minimal assumptions
  - Unfinished artifacts
  - Group success
  - Become their own story
Applying the integrative design model

Multimedia/technology integration
The Media Lab/Learning Lab
Available tech:
Visual tracking, robot cameras, tools for scene development and human interaction with virtual objects. VR and AR, virtual world sandbox, holograms and VJ mapping, avatar building, software platforms, wearables, AI...
Technological change

- Gamification
- Location-based Learning
- Augmented Reality
- Wearable Learning
- Intelligent Environments
- Nanotechnology
Technological change

- Augmented Virtuality
- Data Mining, Informatics, and Data Visualisation
- Advanced intelligent learning tools and displays
- Learning Implants and brain-computer interfaces
- Fluid interfaces and interactive haptics
Learning Technologies integration

• Determining the relevant integrated multimodal academic activities and cadence

• Create a variety of context relevant learning environments
Applying the integrative design model

Real-world simulation
Living the future learning experience

- Multiple critical change agents
- **STEEP** (Society, Technology, Environment, Economy, Politics)
- Paradoxes and hybrids
- Reconceptualization

Rhizomatic thinking meets “think like a DJ”
## Develop Concept platforms

<table>
<thead>
<tr>
<th>FUTURE TRIGGER</th>
<th>NEW TRIGGER AS CONCEPT PLATFORM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student is king</td>
<td>Content is the learner</td>
</tr>
<tr>
<td>Smaller is bigger</td>
<td>Flexible is better</td>
</tr>
<tr>
<td>Devices - extended brain</td>
<td>My second brain</td>
</tr>
<tr>
<td>Learning reconceptualised</td>
<td>Learning as self-extension</td>
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<tr>
<td>Cognitive feedback / machine assessment</td>
<td>The student as data</td>
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<tr>
<td>Experiential / experimental</td>
<td>Student as an immersive interface</td>
</tr>
<tr>
<td>Learning enterprises</td>
<td>Towards community based learning</td>
</tr>
</tbody>
</table>

- Custom-tailored learning – Aperture Learning
- You are the curriculum
- Access, analysis, processing over retention
- Learning as self-extension
- Adaptive learning ecosystem
- Living Classroom – Learning Unleashed
- Alternative knowledge suppliers
Living Learning: The Art of Awesome

• The scenario can be created and delivered in a multitude of formats:
• Conventional storytelling: “A day in the life"
• Multimedia 3D world visualization
• Interactive, immersive and simulation
• Gamification
• Multimedia and multisensory performance pieces
Future scenarios – 2025

Experiential Learning in 2025
Future Scenarios - 2025

- Design education → Receives certificate of completion
- TBF list all courses - student access virtual classroom
- TBF access and sort topics that are based on
Creating a design brief for your m-learning project

Course Home

Mobile Learning Toolkit
Learning languages 2025

Technology – Virtual reality
Mobile learning technology and devices are critical for enhancing and creating authentic language learning situations in 2025. Many learners do not have the opportunity to travel to different countries where the target language is spoken, making VR technology an important tool for simulating real-life locations and situations.

Virtual reality technology today can generate images, sounds and other sensations such as haptics. In 2025 the technology and devices will have developed even further, with more advanced hardware and software, further enabling us to experience immersive and engaging learning situations.

The virtual learning situations in the course will be augmented, where information such as translations, descriptive images, tips and feedback can be provided to the learners as an overlay over the virtual reality. This will further enable the learners to take control over their own learning as they can actively work on improving and expanding their vocabulary, pronunciation, sentence structure etc.

Technology – xAPI and AI agents
Through the use of experience API (xAPI) software, new types of learning data will be tracked and captured, such as complex interactions and mood (bodily language), in order to better provide personalized learning experiences and assessment.

The data gathered is participant in adjusting the difficulty of the units to the individual learner’s needs.

Most of the course content will make use of AI agents within the virtual environments. These agents serve as the virtual scenarios’ inhabitants that the learners can interact with in their learning journeys. The agents will adapt the information and responses given based on the learner’s proficiency (difficulty level) in order to provide the learner with proper scaffolding. In unit 4 the learners will be able to place modifiable AI agents in the course room, where they will act as story characters in the learners’ interactive narratives.

Support and assessment
The course will also enable the learners to use different media and technology based on their own preference, such as photography, music and video, in their ‘solving’ of both larger and smaller learning activities within various units. This furthers the course as student-centred as the content can adapt to learner skills, knowledge and interests, thus increasing student engagement and retention.

Experience API will in addition to providing personalized learning experiences provide the mentors with crucial data that can be used for formative assessment.

The course has no traditional testing (e.g. tests, exams) to measure learner proficiency. The learners are evaluated based on their continuous performance in the learning activities, as the activities provide the learners with authentic situations where they use their knowledge and skills to reach goals and objectives.

Through frame capture of the VR experiences, the learners are prompted to analyse and evaluate their own learning process in order to find potential improvement areas.
The course is using our own LMS as a portal for you education, this is where the learners can see their progression, find task and assignments. Most of this can also be accessible verbally from the learners' wearable AI tutor.

ABOUT THE COURSE

This is a language course set in 2025, the course is provided by a company, using student data to provide adaptive learning. The company/course is using data gathering from users, to customize each individual learning path. The course takes advantage of the available technology in the year 2025, using brain implants for monitoring, wearable devices, AI-technology and machine learning for analysing, and to provide a digital tutor for the learners. All accessible from the course learning management system on their mobile and home devices.

TECHNOLOGY

Our main technology is our deep analysing and monitoring AI software functioning as the backbone for the course allowing us to customize the learning experience for the individual learner and make the learning process fully adaptive.

The software is monitoring the result and body data from the learners, to customize the course for the learners, by looking for triggers of motivation and what delivery sources and tasks the learners get the best result from.

- Our delivery source database allows for the adaptability to learners need.
- Compatibility with the monitoring hardware the learners already own.
- To satisfy today's learners our course is compatible with all mobile and home devices, giving the flexibility a learner need, allowing you to studied when and how you want.
Introduction

Learning is changing. And in most cases, it is changing for the better. As new technologies emerge, it is up to us to grasp the new possibilities they bring, and shape these technologies into revolutionary learning tools that will define the process of learning in the years to come. This design brief is my attempt at creating a course that will not only use emerging technology, but use it in a way to make the whole learning process smarter and more intuitive.

Through the course of the MM-402 Mobile Learning course, I have refined and developed this idea from the simplicity of an interesting app into the idea for a full curriculum. This has happened through many different processes of future thinking and insight, and this has helped me think about the future in a less linear and rigid way, and think more outside of the box.

My hope for this design brief is that you will not only find it interesting, but that it will inspire additional ideas for the future of learning, and give a foundation on which to build a real-life course based on this idea.

Throughout this course, the student activities will be analyzed and evaluated by the AI and tutors. The students will also be able to check on their progress, as well as areas they might need to focus more on themselves. By providing this kind of feedback directly to each individual student, the learning experience will be more personalized and more focused on what each individual student needs.

The AI and tutor will use this data to compare students and how they are doing, assigning different tasks to different students depending on their individual needs. The goal of this evaluation is not grading, but improving the learning the students are receiving. The end of module reports gives the student a chance to voice their opinion on what they have learned, further enabling the AI and tutor to enhance the learning experience.

While this system is useful for the AI and tutor to analyze performance after the fact, the system will...
World history course 2025

Virtual classroom

AR assistance

Using AR glasses or lenses

Device assistance - Smartphone

When going on excursions and generally for learner on the move, AR glasses and lenses would be the preferred solution. With this AR would act as an assistant in the learning, bringing the information to the learner.

An alternative to AR glasses/lenses would be smart devices such as a smartphone. The smart devices would be able to recreate historical objects/buildings/landscapes, like shown above.

The virtual classrooms can contain just about anything. They can be either passive and active, depending on the subject. The video above is an example of a passive virtual classroom, where the learner experiences a scenario from WW2.
A conversation is designed to allow the game player to choose their VR experience either at Georgia Tech’s Invention Studio or Freeside Maker Space.
Living Classroom History of Multimedia

Shape of a book – projection mapping

The mapped sculpture shape shifted and content shifted to depict the multiple potential types of learning sources and environments in the future as well as the changes in the way we will learn and teach.
Think like a DJ

Deconstruct
Mutate
Spin
Transform
Migrate
Displace
Simulate
Fuse
Translate
Recombine

Transformative concepts
Thank you