Welcome!

Thank You for Joining Us &
We’re Glad You are Here!
Look Mum! No courses!
Re-imagining a games development education

Robbie Grigg
grigg.r@nhtv.nl
Senior Lecturer & Head of Games Programming
International Games Architecture & Design (IGAD)
Academy for Digital Entertainment
NHTV Breda University of Applied Sciences

2nd June 2017
Some context
Where is NHTV?
In The Netherlands
Agenda

Who is NHTV?

The old way

The new approach

The tool STRAIGHTJACKET

Demonstration

Outcomes / Q & A

Pictured is our Game-Lab environment encouraging professional game development in an industry like environment.
Who is NHTV?

CMGT - International Games Architecture and Design (IGAD).

Part of the Academy for Digital Entertainment.

Based in Breda, The Netherlands (1hr south of Amsterdam).

Students making games with an aim to be the best.

Our graduates find great jobs.

Various skillsets of game development are trained whilst always working together in multi-disciplined teams to create games.
Learning game development at NHTV

Building on core Art, Design, Programming & Production skillsets.

Ex-Game Industry Teaching Team.

Hands-on with Game Development Hardware.

Entertainment Gaming Focused.

Part of Sony’s PlayStation First Group

Life drawing is just one example of the foundation skills taught.
IGAD old course strengths

Good reputation for quality

IGAD Graduates obtain great game industry jobs

Game-Lab is popular and creates rich portfolios

Graduates find employment with leading games companies

Students are motivated and develop games in and out of NHTV

Students specialise from the first year (in one of 4 areas)

Ex-industry staff passionate about creating the best graduates
Output from the study example

https://youtu.be/QZk7AabcgQs
Pine - An action adventure game that adapts to you

Find your way to a new home for the Human species in an intricate game ecology that adapts to your actions, inactions and choices.

Follow development!

Created by
Twirlbond

4,091 backers pledged €121,480 to help bring this project to life.
# IGAD course challenges

<table>
<thead>
<tr>
<th>Student challenges</th>
<th>Staff challenges</th>
<th>Management challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Large numbers of courses and competing game-lab projects</td>
<td>- Overheads on course creation/changes/running</td>
<td>- Graduation numbers too low - high dropout rate</td>
</tr>
<tr>
<td>- 4 pathways that are quite rigid preventing deeper specialisation and creating fail points</td>
<td>- Grading is time consuming and requires work at home</td>
<td>- Lots of study delay</td>
</tr>
<tr>
<td>- Difficult to impossible to change between pathways</td>
<td>- Retakes require multiple versions of courses</td>
<td>- Too many courses (3x a normal programme)</td>
</tr>
<tr>
<td>- Related extra-curricular activities not recognised</td>
<td>- Fast changing industry means difficult to keep up</td>
<td>- Course changes are difficult to implement</td>
</tr>
<tr>
<td>- <strong>Burn-out</strong></td>
<td>- Teaching non-expert areas</td>
<td>- Room scheduling a roadblock</td>
</tr>
<tr>
<td></td>
<td>- <strong>Stressful</strong></td>
<td>- Hard to determine where students are at</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>Not viable</strong></td>
</tr>
</tbody>
</table>
**Old courses**

- Individual courses
- 3-4x what is shown
- Then x2 that
- Course versions
- Retakes
- Student sign-ups??
- Shared courses
- Pressure to share more courses...

---

### Old courses

**Individual courses**

- 3-4x what is shown
- Then x2 that
- Course versions
- Retakes
- Student sign-ups??
- Shared courses
- Pressure to share more courses...

---

### Block A: Programming - Year 1 (54 Credit - No Compensation)

<table>
<thead>
<tr>
<th>Block</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Game Lab 1 (GL1)</td>
</tr>
<tr>
<td></td>
<td>Game Lab 2 (GL2)</td>
</tr>
<tr>
<td>B</td>
<td>Game Production 1 (GP1) - 3D</td>
</tr>
<tr>
<td></td>
<td>Game Production 2 (GP2) - 3D</td>
</tr>
<tr>
<td>C</td>
<td>Design Fundamentals (DFP)</td>
</tr>
<tr>
<td>D</td>
<td>Writing Skills 1 (WS1)</td>
</tr>
</tbody>
</table>

### Block B: Programming - Year 2 (6 Credit Deficit Entry)

<table>
<thead>
<tr>
<th>Block</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Game Lab 3 (GL3)</td>
</tr>
<tr>
<td></td>
<td>Game Lab 4 (GL4)</td>
</tr>
<tr>
<td>B</td>
<td>Foundation 2 (FS2)</td>
</tr>
<tr>
<td></td>
<td>Foundation 3 (FS3)</td>
</tr>
<tr>
<td>C</td>
<td>Specialist Module Design (SMD)</td>
</tr>
<tr>
<td>D</td>
<td>Industry Preparation (IP)</td>
</tr>
</tbody>
</table>

### Block C: Programming - Year 3 (8 Credit Deficit Entry)

<table>
<thead>
<tr>
<th>Block</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Game Lab 5 (GL5)</td>
</tr>
<tr>
<td></td>
<td>Game Lab 6 (GL6)</td>
</tr>
<tr>
<td>B</td>
<td>Entrepreneurship (ENT)</td>
</tr>
<tr>
<td></td>
<td>Advanced Game Tech 1 (AGT1)</td>
</tr>
<tr>
<td>C</td>
<td>Writing Skills 2 (WS2) - 4</td>
</tr>
<tr>
<td>D</td>
<td>Industry Preparation (IP)</td>
</tr>
</tbody>
</table>

### Block D: Programming - Year 4 (10 Credit Deficit Entry)

<table>
<thead>
<tr>
<th>Block</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Work Placement (WPI)</td>
</tr>
<tr>
<td></td>
<td>Graduation Project (GP)</td>
</tr>
<tr>
<td>B</td>
<td>Industry Preparation (IP)</td>
</tr>
<tr>
<td></td>
<td>Game Lab 7 (GL7)</td>
</tr>
<tr>
<td>C</td>
<td>Customer Relations (CR)</td>
</tr>
<tr>
<td>D</td>
<td>Industry Preparation (IP)</td>
</tr>
</tbody>
</table>

---

### Course versions

- **Retakes**
- **Student sign-ups??**
- **Shared courses**
- **Pressure to share more courses...**
Critically - Industry feedback

Industry critique:

*Students could be more specialised*

*Not all career paths are supported*

*Portfolios are sometimes found to look quite similar*

*They need to finish projects and publish at least one*

*Students should obtain more experience with production assisting tools*
And now:

New Government sector - Creative Media and Game Technology

All new competencies...
Enter IGAD v2.0
2015 - Change all years to the new system...
Philosophy

Support each student’s personalised learning path

Give a student guidance and facilitate their work towards a perfect career

Give a student guidance & facilitate their academic progress and future options
IGAD v2.0 – Vision for Students

To consolidate us amongst the world’s best game educations:

- **Pioneer a Role-Based Learning approach and associated system**
- Adopt latest games industry practice for pipeline, tools and management
- Allow students to explore and develop to their best abilities
- Keep students project focused (no retakes, competing courses, etc..)
- Allow student game development in & outside NHTV to progress study
- Bring your own device (BYOD) focused – traditionally IGAD
- Specialist hardware, software and dev-kit purchases for Makerspaces
IGAD v2.0 – Vision for Staff

Making it a great place to work:

- Refocus work on making games rather than making courses
- Refocus work ethic to be team-based, supportive & collaborative
- Reduce administration whilst increasing the quality of assessment
- Mature education model to encourage expert groups
- Allow staff to focus on their strengths where and when needed
## IGAD v2.0 plan

<table>
<thead>
<tr>
<th>Student plan</th>
<th>Staff plan</th>
<th>Management plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>- No courses</td>
<td>- Teach in your expert area</td>
<td>- Keep students with their cohort</td>
</tr>
<tr>
<td>- Everything project based with one project at a time</td>
<td>- Making the grading process manageable</td>
<td>- Easily schedule lectures or workshops</td>
</tr>
<tr>
<td>- Role defined by the student</td>
<td>- Make student development visible across projects and years</td>
<td>- Make student progress clear and concise</td>
</tr>
<tr>
<td>- Give them control of their competency profile</td>
<td>- Leverage all e-learning resources</td>
<td>- Address dropout rate</td>
</tr>
<tr>
<td>- Make it easier to find resources, staff and guidance</td>
<td>- Be responsive to student needs</td>
<td>- Address study delay</td>
</tr>
<tr>
<td>- Encourage participation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Encourage participation
- Make it easier to find resources, staff and guidance
- Keep students with their cohort
- Easily schedule lectures or workshops
- Make student progress clear and concise
- Address dropout rate
- Address study delay
But... a PBL system has a recommended **maximum** staff-student ratio of 20 to 1
Role-Based Learning (RBL)

Pioneering a new teaching methodology – Role-Based Learning (RBL)

Leveraging the best of Project Based Learning (PBL)

Addressing the weaknesses of PBL – individual performance

**BUT** this is even more intensive than PBL because we need to individually assess and manage....
IGAD v2.0 - The challenge

Supporting personalised learning is logistically challenging for both Students and Staff within the confines of University management and government requirements

Study support system that captures feedback from a granular artefact creation level through to a high-level learning goals and development

Embrace the experiential learning of game development
Inspiration - RPGs?

The Multiplayer Classroom

By Lee Sheldon
Inspiration - The old learning object model

“The permissive approach to using **learning objects** focuses on making the reuse and localization of all resources, regardless of their structure, as effective and efficient as possible” - from *The Learning Objects Literature* ([http://www.opencontent.org/docs/wiley-lo-review-final.pdf](http://www.opencontent.org/docs/wiley-lo-review-final.pdf))

*The Future of Learning Objects* - by H. Wayne Hodgins ([https://goo.gl/YHMjyO](https://goo.gl/YHMjyO)), the father of learning objects

From work in the 90s I saw this appear in and be used in Australia

Although I have seen this come (and go) in a lot of environments
Introducing project STRAIGHTJACKET

STRAIGHTJACKET is to facilitate an effective RBL experience

We need to be able to evaluate individual learning paths

Producer, Director, Engine Programmer, Artist, Modeller, Audio Engineer, Designer, Gameplay Programmer, etc..
Student led designs
THE WAY THEY WALK
Modern puzzle game for the Tablet and Phone
By: Get in the Van

Summary: In Destiny (from the creators of Halo) you are a Guardian of the lost city on Earth. You are able to wield incredible power. Explore the ancient ruins of our solar system, from the vast dunes of Mars to the lush jungles of Venus. Defeat Earth’s enemies. Reclaim all that we have lost. Become... Expand.

User Score: 95
User Score: 95

Critic Score: 95
Critic Score: 95

Watch Trailer

TEAM LEAD
Oliver Engels

VISUAL ARTISTS
Cristie Balis
Jaams Friezo
# PROFILE

## BOOKMARKED ROLES

- Social Designer
- Scenario Designer
- World Designer
- Flow Designer

## BOOKMARKED OBJECTIVES

- Questionnaire
- Case-study
- Apple App Store publish
- Header Files
- Iteration Constructs
- Casting
- Utomik
- 2D Collision

### OLIVER ENGELS

**ID:** 120010

### PROGRESS

**AVERAGE LEVEL:** 2.3

**AVERAGE GRADE:** 8.9

---

Matthijs van de Laar
AUTOMATIC TESTING - QA ★

The student is able to perform Automated Testing.

RELATED ROLES
- Lighting artist
- Procedural Artist
- Props Artist
- Effects Artist
- Mocap / Live Direction
- Tools Designer
- Producer
- Scriptwriter

REQUIREMENTS
- PASS: Evidence of technical knowledge through application/research and analysis.

RESOURCES
- http://www.stack.nl/~dimitri/doxygen/

Matthijs van de Laar
PLAYLIST FEEDBACK
(SUBMITTED 03-06-2016)
Give feedback on this student's submitted playlist here. Please give written feedback, a stamp and a level per asset. Please give an overall grade for the playlist on the right.

ASSET 1
OBJECTIVE
VALUE'S STEAM

REQUIREMENTS
Select the appropriate category regarding this asset.

PASS: Evidence through application.

FAIL: Insufficient.

FEEDBACK
LEVEL 1

JOB
Simple, structured, fits directly to known methods according to established standards.

CONTEXT
Known, simple.

INDEPENDENCE
Directive counselling.

OLIVER ENGELS
120010
STUDENT PROGRESS

SAVE DRAFT
SUBMIT REVIEW
Matthijs van de Laar
## Workshops

### Period: Week 30, Wednesday July 22nd, 2015

<table>
<thead>
<tr>
<th>Room</th>
<th>09:00 - 11:00</th>
<th>11:00 - 13:00</th>
<th>13:00 - 15:00</th>
<th>15:00 - 17:00</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1.222</td>
<td><strong>Kick-Off Event</strong>&lt;br&gt;FRN, WILD, AJA, RED, RBG</td>
<td><strong>Programming 101</strong>&lt;br&gt;BEU, RBG</td>
<td><strong>Empty</strong></td>
<td><strong>That One Workshop</strong>&lt;br&gt;GOD</td>
</tr>
<tr>
<td>N1.235</td>
<td><strong>Empty</strong></td>
<td><strong>Empty</strong></td>
<td><strong>Empty</strong></td>
<td><strong>Art 102</strong>&lt;br&gt;BWO, XOC, ORD, PSH</td>
</tr>
<tr>
<td>N1.401</td>
<td><strong>Empty</strong></td>
<td><strong>ASDFASDF</strong>&lt;br&gt;DR. X</td>
<td><strong>Empty</strong></td>
<td><strong>Empty</strong></td>
</tr>
<tr>
<td>N1.405</td>
<td><strong>Empty</strong></td>
<td><strong>Empty</strong></td>
<td><strong>Texturing 1</strong>&lt;br&gt;SAM</td>
<td><strong>Empty</strong></td>
</tr>
</tbody>
</table>

*Matthijs van de Laar*
Program logistics
New program structure

Year 1
- Block A: Variation Project 1
- Block B: Variation Project 2
- Block C: Variation Project 3
- Block D: Game Project 4

Year 2
- Block A: Variation Project 5
- Block B: Variation Project 6
- Block C: Game Project 7
- Block D: Variation Project 8

Year 3
- Preproduction
- Production
- Polish
- Publish
- Large Project

Year 4
- Minor / Internship / Incubator Student Company
- Internship / Graduation
Student block
A Student week

Year 1
- Mon: Project Lab
- Tue: Project Lab
- Wed: Workshops, Lectures, and Guest Lectures
- Thu: Project Work
- Fri: Study Day

Year 2
- Mon: Project Work
- Tue: Study Day
- Wed: Project Lab
- Thu: Project Work
- Fri: Project Lab

Year 3
- Mon: Project Lab
- Tue: Project Lab
- Wed: Workshops, Lectures, and Guest Lectures
- Thu: Project Work
- Fri: Study Day

Year 4
- Mon: Minor
- Tue: Internship
- Wed: Graduation
- Thu: Masters

NHTV
Breda University of Applied Sciences

< Year 3 – Group 1
< Year 3 – Group 2
Labs and workshops
Software architectural design
High-level design - learning objectives

Competency
- Group
- Name
- Description
- GraduateLevel (2/3)

Role
- Name
- Discipline
- Description
- Department
- Responsibility
- URL

Learning Objective
- Objective
  - Area
  - Rubric Pass
  - (Rubric Distinction)
- Supporting Lecturer/s
- Maps to
- V1 Old Course (Code & Level)
  - The level is from the year the student is in.

Lecturer
- Name
- ShortName
- Email

Supporting Resource/s
- Created When
- Active
- URL or Book Reference

Attempt
- Date
- Fail/Pass/Distinction
- Level Achieved
- Feedback
- Asset Link (Helix)

Resources
- Book Reference
- Perforce
- Web Resource
- NatSchool
- Example (Including best Student work)
High-level design - the project
The learning objective

The core of the system - decoupled from courses

Clear rubric

Linked lecturers to go see for help

Linked learning resources

Linked competency

Linked careers

Associated objectives
Career profile

Students can review and bookmark careers

Look at what learning objectives are related to a career path

Students can find other career options within an area

The career profile showing what areas they have developed in.
Academic profile

Student can see their progress

They can find learning objectives that may interest them for a future project

The graduation profile is made quite clear to students

Maybe this is too much...
Workshop Wednesday - conference like
STRAIGHT JACKET walk-through
Technologies used

STRAIGHTJACKET is built on:

- Apache
- PHP/Bootstrap/HTML/CSS
- MySQL
- Currently running on a windows server
- Tested on Chrome only (due to resources)
- Gravatar.com for user icons
Security

LDAP Authentication with 4 security levels:

- Not Logged In – View best student examples
- Student - View objectives/careers/workshops & Individual progress/playlists
- Staff - View objectives/careers/workshops, resource changes and Student progress/playlists
- Staff Admin (Testing Committee) – Staff abilities as well as new and edit objective request processing

Objective are automatically versioned - this is a continuous improvement system

The more open the better!
Visualizing student progress

Asset activity - Gource (http://gource.io) is open source and examples in the video (https://goo.gl/oMykWd) include:

- Moodle
- Git
- Drupal
- PostgreSQL
- Ruby on Rails
- Linux
- VLC Player
Staff trying to better understand it
This is IGAD

... A world class, role-based game-dev education
... Students take an active role in shaping their own development
... Values: Applied learning over abstract theory
... Training in both the crafts & business of game-dev

Curriculum

Exploration
- Cross-disciplinary modules
- Game Marnelaade
- 1-2 Block Team Project

Foundation
- Discipline Fundamentals
- Study Skills
- 1-2 Block Team Project

Intake

Straight Jacket
- Playlists
- Evidence & Feedback
- Learning Objectives
- Overview of educational content
- Workshops
- Agenda for weekly workshops
- Expert groups
- Overview of and access to expert groups
- Competency Profile
- Student's competency profile

Y2
- Exploration
- 2 Block Team Project

Y1
- Foundation
- 1 Block Team Project

Y4
- Contribution
  - Contribute to EdTech or Industry
  - Personal Project
  - Own Company
  - Study Exchange
  - Work Placement

Y3
- Specialisation
  - Refine Skills
  - Build Portfolio
  - 3-Year Team Project

Y4
- Contribution
  - Contribute to EdTech or Industry
  - Personal Project
  - Own Company
  - Study Exchange
  - Work Placement

Project Loop

Brief
- Block
- Goals
- Plan
- Do
- Reflect
- Feedback

Rene Derks
Staff working in teams?
Master - Apprentice relationship

Feedback culture
  Grows amongst student

Experiential is important

Peer pressure is important in engagement

Single point of focus

Portfolio artefact - what they want
Change challenges

We lost 35% of staff

Research warned us that 33% of staff will be lost in such change...

Working in teams has really pooled knowledge, resources and support centrally but this could be done better

Supporting more personal development outside of the core project

Faculty Resistant to Change of Assessment Techniques (mentioned also in the Lessons Learned from MOOCs - Deborah Keyek-Franssen)
Pareto principle or 80/20 rule...

http://www2.latech.edu/~box/ase/papers2011/Ankunda_termpaper.PDF
Interim accreditation

Results from the 1st interim accreditation
Accreditation - a success

“The panel would like to compliment the programme for choosing such a bold innovative educational method, understanding very well that implementing a project-based curriculum with individual assessment challenges both staff and students. The motivation, commitment and enthusiasm of the staff was much appreciated. The panel is confident that this team will be able to fine-tune the new curriculum in the coming years.”
But - accreditation discussion

“Make a film about a student journey to make a panel understand the individual pathway, to get a grasp of what it is all about.”

This highlighted that what we are doing is so different we have problems in helping outsiders understand what is going on.
Survey results
Staff response

Staff extremely happy about not taking large amounts of work home

Amount of hours changed except that most agreed they no longer took work home

79% prefer the new way of teaching

78% felt that the relationship with students is more open

56% felt that it gives students a better portfolio

56% felt that the approach prepares them better for industry

86% felt that this approach makes their life/work balance better
Student response

90% believe it is building them towards their desired career or internship

61% believe there are maintaining a good life/study balance

89% are happy being at the study

73% thinks this study approach is better than prior education experiences

26% think we need more staff (44% undecided on this)
NSE results

External National review
NSE Discussion

We went to number 3 in the Netherlands in the first year from number 1

But now we are back at number 1

We performed strongly in nearly all areas

Number of assessments scored low...
Outcomes
Outcomes

Results so far:

- Staff and students use this tool a lot
- No more scheduling issues
- No more late grades - grades delivered within 48 hours (even immediately)
- Student learning is more individually than ever before
- Supporting a large variety of possible student specialisations
- Feedback culture is more positive
- Interest is higher in what each student is doing
- Dropout rate in project to be around 10 percent
- Knowing who will attend your workshop/lecture
- Increased attendance and contact time
Doing this yourself?
Thoughts on making Role-Based possible for you

How might you approach this within your education?

- Give foundations
- Create interesting options to find, explore and undertake
- Be creative with existing tools
- Start simplistically
- Give students enough structure, but not too much
Example software

Microsoft Teams

Slack is great but...

Incremental document changes...

Google Docs

Office 365
Version Control

Can it help?

- Perforce/Swarm
- SVN
- Git

Lots of other options
Slack screen sharing is now available

Note: this feature is only available to paid teams.

Upgrading to one of Slack's paid plans will allow your team to screen share directly from calls made in Slack, as well as enjoy paid-only features such as group calls, an unlimited archive of searchable messages, guest accounts, and more.

To start screen sharing, you must be running the latest versions of our Mac and Windows desktop apps.

Learn more on our blog →
Special Thanks

Special thanks to Will Davis, Sam Gilbert, Elwin Verploegen, Oliver Engels, Matthijs van de Laar Bert Heesakkers, Ronny Franken, Doug Walker, Nova Ambachtsheer-van Schijndel, Jet Broeken, Iris Pinel
Q & A

Find out more?
Robbie Grigg
grigg.r@nhtv.nl
Session Evaluations Contest

- [https://tinyurl.com/OLCwELD-program](https://tinyurl.com/OLCwELD-program)
- Navigate to specific session page to evaluate
- Click orange “Evaluate Session” button on the right
- Complete session evaluation*

Each session evaluation completed (limited to one per session) = one contest entry
One (1) $25 gift card will be awarded

*Contact information required for contest entry but will not be shared with the presenters. Winners will be contacted post-conference.
Follow Us on Twitter!

Let’s Get the #OLCwELD trending on Twitter!

@ELDconf
@OLCToday