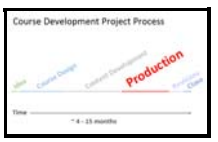
The Robots are Coming: Our Journey Towards Course Production Automation

Intro robotic music

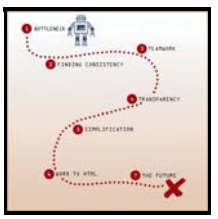
0 - Background (Kyle)

`Who we are`

- We are the Course Production Team in the Learning and Teaching Centre
- Panel style: please stop us and ask questions at any point (hands-up)
- We take content from a variety of people in Word format, process it, and build courses



- This timeline shows our role in the course production project process



- Today, we're showing our journey to improve and automate the course production process

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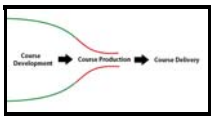
1 - Bottleneck (Kyle)



- overwhelming Instructional Designers to Course Producer ratio
    - We were a bottleneck in the course production process
- Wanted to leverage technology to find a better process
    - scalable
    - standardized
- Wanted to pivot to a culture of continuous improvement

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2 - Finding Consistency (Karl)

`Inconsistent input`

Click through 3 examples

- Instructions were difficult to decipher

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2 - Finding Consistency - Solution

Develop a common language (Mike)

- Started by encouraging the use of #markers
    - Easy to spot
    - Difficult to miss
    - Simple
        - Easy to remember
        - Minimal keystrokes
    - Clearly indicates the start/end of content

- Next we:
    1. Compiled a list instructional language found in older courses
    2. Asked various members of the LTC to perform a card-sorting excercise
    3. Eliminated duplicates and produced a core set of commonly used "learning blocks"

Conversion Guide (Karl)

- Provide a guide for how to mark documents so we understand it
- Results of card-sort ---> menu

Conversion Guide Demo

- Open menu of User Interface patterns
- Click on Readings
    - preview
    - Word
    - html

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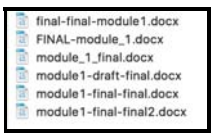
3 - Teamwork (Felicia)

`inconsistent hand-off`

- Communication was very informal
    - By email
    - [knock knock]
        - “Sorry forget about that module 4, it’s the wrong one… here is the real module 4!”

- We're getting stuff from all over the place
    - Different people (instructional designers, video producers)
        - USB
        - Shared LTC drive
        - Email
        - DVDs, CDs
        - Scrap paper, post-it notes (not even joking)

Which of these would you work on?



- Final-Final-final2.docx - not clear which asset to work from
- Compounded by Crunch Time

- Easy to lose track of work

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3 - Teamwork - Solution (Karl)

- Cloud-based project management platform
    - Central file sharing
    - File versioning
    - Tasks management

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4 - Transparency (Felicia)

How do you scope the production time for online courses? Are you able to guess how long it will take?

- Course developers didn't see the content until it needed to be produced
- We didn't estimate delivery times, it was assumed to be 1 module per day
    - Really big vs really small modules
    - Scoping difficult
- Difficult to schedule course production work
    - multiple projects on the go
- Untransparent work prioritization
    - Squeaky wheel - the loudest gets their stuff done first
    - inconsistent method of deciding who's work gets done for competing deadlines
- individual course producers bore the brunt of people's frustration

4 - Transparency - Solution (Kyle)

`Estimation, FIFO, production board`

- Broke monolith course projects into more granular tasks (modules vs. courses)
    - actual content vs assumed content
    - Estimations calculated with more accuracy

Calculator demo

- inform / defend how long it takes to complete a task

Production Board slider

- leave on first slide
    - slide to Brian H. (management approval)
    - slide to end for iterations
- First-in-first-out queue
    - Put up a Kanban-style production board
        - public location
        - LEAN principles
    - urgent tasks require management approval
    - intent is to communicate
        - transparent workload & capacity
        - task's current place in line

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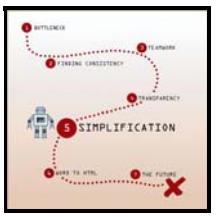
5 - Simplification (Felicia)

`inconsistencies in design, code and workloads`

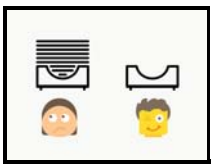


Anyone know what bike shedding is?

- Design inconsistencies - "bike shedding"
    - Too much time spent on trivial details instead of what's actually important
    - Style decisions based on preferences of non-designers
        - 
        - 
        - Every course a slightly different
    - No accessibility
    - Lack of visual design
    - No consultation with Graphic Artists
    - No cohesive design between courses (even within the same program)
- Code and structure - different working styles between course producers
    - file structures

- naming conventions in the code varied
  - synonyms
  - upercase, lowercase
  - spaces vs hyphens, underscores
  - no shared language

- Workload distribution
  - Therefore, it was difficult to hand-off work to a colleague
    - Trying to work off someone else's CSS was like Peter Griffin



  - Uneven distribution of work
    - no vacations during crunch time (Working over Christmas for a project due by January)

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5 - Simplification - Solution

Designer-led visual design (Karl)

- Addressing bikeshedding
- Asking people to focus on content rather than design
  - colours, fonts, icons

Style Guide

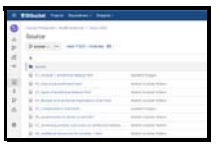
- Collaborated with Graphic Artists and BCIT marketing
  - Optimized
    - usability and readability of the content
    - accessibility & maintainability of the code

Sugar Suite (Mike)

- Custom CSS/Javascript Framework called Sugar Suite
  - Incorporates shared language
  - Moved complexity
    - super clean HTML
    - Leverages Sass and JS

    - Centrally managed
        - simply point html at a URL
        - Deploy updates and enhancements

Workload Distribution (Mike)



- Standardized Storage:
    - Standard File structure (skeleton)
    - Version Control System (git)
- Result:
    - Because:
        - Simplified code
        - we all know where to find things
    - We can:
        - Instantly switch courses
        - Work in parallel

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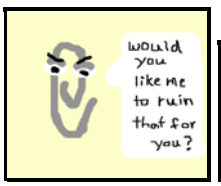
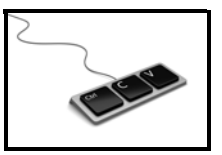
6 - Word to HTML (Felicia)

`Copy pasta, Dewordify demo`

- Highly repetitive, yet detail oriented work required under massive time crunches
- Labour intensive
    - ~40% of the job was cleaning up the garbage from MS Word (Microsoft ruins everything)





- ~40% was spent copying and pasting into content into HTML templates
    - Only ~20% left for value added activities

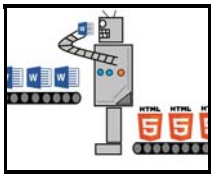
6 - Word to HTML - Solution (Mike)

`Dewordify demo`

Sample Word Module

Ask: How long would this take to convert to HTML?

- Live example:
    - create new page
    - create #reading using the Conversion Guide
    - Ask audience for a suggestion



- Introduce Dewordify
    - Ingests word documents
    - "Outputs" HTML
    - Custom built from the ground up
        - Written in Javascript (ask me why)
        - Incorporates our shared language
        - Uses our folder structure
- DEMO Time
    - Show the page we added
    - Notice the clean HTML
    - Show images in assets folder
- Benefits
    - Faster throughput

Recap (Kyle)

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Lots of change, learning, improvements, more to go
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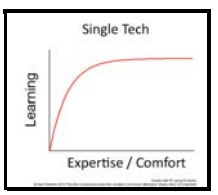
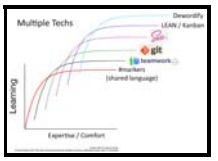
- Lots of change
    - Shared language
    - Centralized file sharing
    - Adopted Teamwork, a cloud-based project management tool
    - Standardized task time estimates
    - FIFO queue
    - Adopted production board, a Kanban-style visual workflow
    - Implemented version control
    - Standardized module structure
    - Standardized HTML, CSS and JS
    - Automated Word->HTML conversion
- Lots of learning
    - Engagement, training, change is tough, accommodation, forecasting, revisions





- Lots of improvements
    - 53% increase in # of projects + other stuff
    - 51% decrease in amount of time per module
- Lots more to go
    - Interactivities like drag-n-drops, hotspots
    - Revisions

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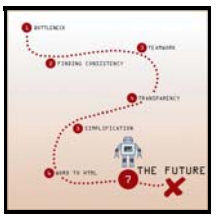
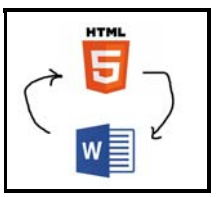
7 - The Future (Mike)

`What we're working on`



- Importerer
    - Packaging up the outputs of Dewordify into an importable SCORM package

- Makeoverer + Restructurer
    - Refreshing old courses with our new look and our prefered course structure



- H2Wo
    - Full circle. Creating word documents from HTML pages for re-development

- Digitized Production board
    - Real-time offsite status reports

- Course Production Website
  - A centralized place to access all the things Course Production Site

- Improving our CSS/JS framework
  - More themes
  - More Interactions
  - Easier customization

- Iconic Server
  - In order to deal with themes, we need to re-color icons. Iconic is an SVG server that can automatically recolour icons based on the URL path

- Web Based Dewordify
  - Empowering developers to produce their own course with an intuitive GUI
  - Previewer
    - Opportunities such as aggregating similar structures for comparison

- Deworditron
  - Cross-platform desktop application for running dewordify with a GUI

`Ctl-C` (Kyle)

`Let's collaborate, links, contact`

Getting started

- Dewordify on GitHub
- Conversion Guide

Contact Us

- [courseproduction@bcit.ca](mailto: courseproduction@bcit.ca)

Questions?

Lessons

- Adoptions
    - Ongoing effort / challenge
    - changings peoples mindset
    - Early engagement is not enough - Continous Engagement
        - Fair process
        - Less guesswork
        - Better product
    - Resources aren't enough - training is essential
        - Resources != training
        - Resources support training
    - When change impacts upstream, percieved as:
        - "who are you to tell us what to do"
        - unecessary
        - unwanted
        - unfair
        - controlling
        - undercutting creativity
    - Willingness
        - comfortable with existing processes
        - too busy/low priority
    - Accommodation can bridge the gap
        - Show, coach, remind
        - Be gentle
        - Anticipate blow-back
- Balance between standardization and flexibility
    - Standardizing too soon kills flexibility
        - hard to change later
        - loss of organic learning
    - Impacts on time and quality
        - if flexibility takes longer and produces an inferior product --> standardize
- Estimation
    - Easy to estimate task duration
    - Difficult to estimate task completion
    - Queue jumpers
        - More revisions
            - Would be quicker to do it right the first time
    - Revisions process has not been streamlined
        - Can be very time consuming
        - Difficult to track down/interpret changes
        - Mitigation?
            - Previewer application

            - Lower the priority (After snake empty)
                - Management approval for urgent
            - Empower developers to perform their own revisions
    - Assets not coming in at the same time as Word document
        - Videos coming in after
        - Images not ready yet
        - Transcripts coming in after videos
        - Not just from project manager
        - Still coming in on USB
    - Need for forecasting solution
        - Suddenly surprised by unanticipated work
            - It's hard to turn away people in a panic
        - People try to slip past management approval

- Different training for Auxiliaries (Jorge)
    - Command line tools can be a scary to newcommers
    - Less coaching
    - More "Do it this way"
        - Which happens to be really easy once you have the tools
    - Git is a monster sometimes
        - Basic understanding
        - Getting comfortable
        - Fixing problems
            - Merge conflicts (OMG)
        - Choosing workflow (branching vs ??)
        - Commit size
        - Commit messages
        - Issues
            - Messages
            - Labels
            - Prioritization
    - Code complexity
        - HTML is MUCH simpler
        - CSS is WAY more complicated
            - requires more specialized skills to maintain
            - More rigid = more difficult to customize
        - It’s hard doing this on our own
            - We’d like to invite people to collaborate with us.

- Design
    - Branding changes
    - Customization
        - What should be customized?
        - What shouldn't?
        - How do you enforce it?

Summary?

- It's been worth it
    - more sharing and collaboration
    - more clarity
        - standard procedures
        - less frustration
        - fewer errors
        - more consistency!
    - more time to invest in development