Rearchitecting for Drupal 8

By frob

In case you are wondering

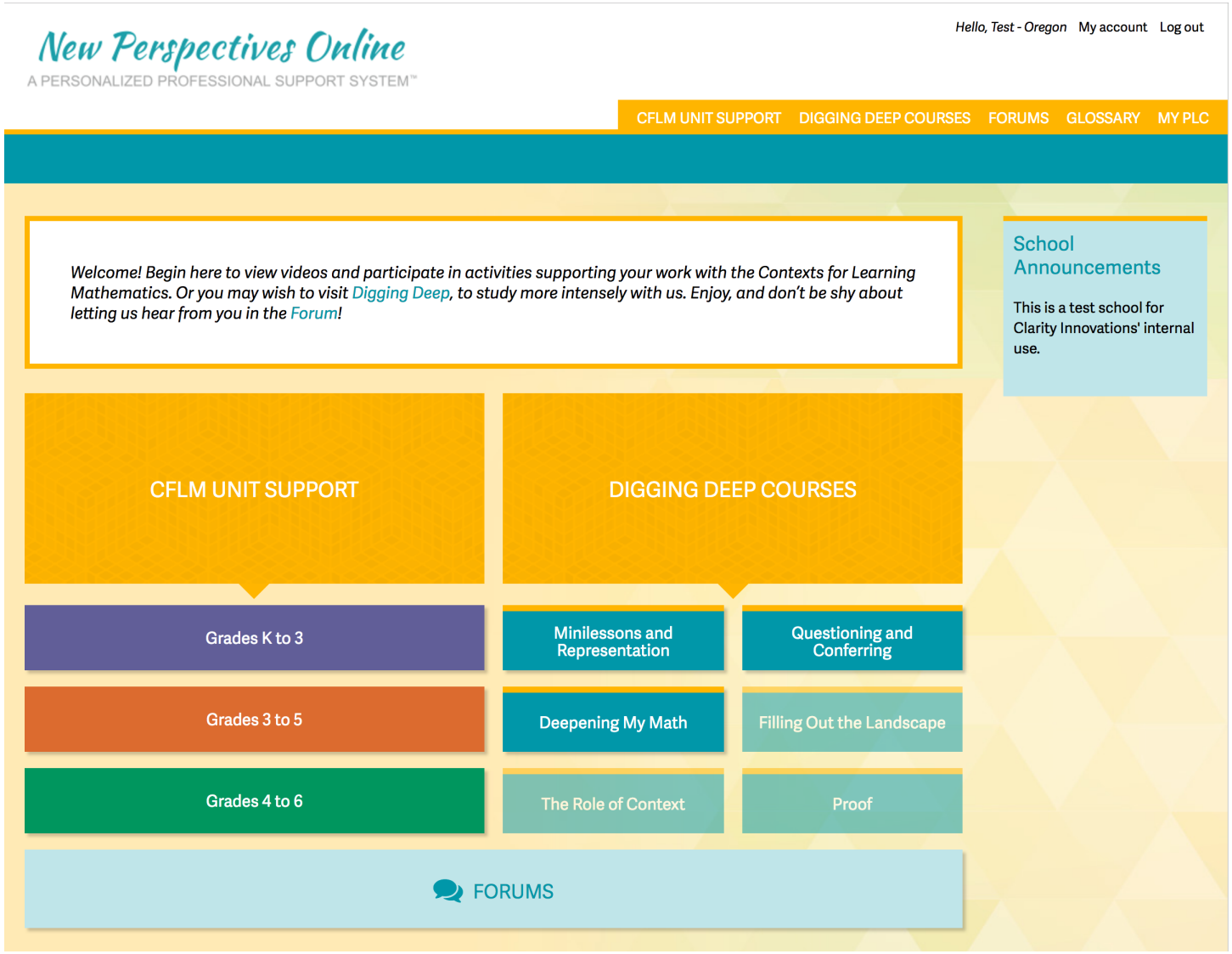
- Prolog <-- **You are here in the session**
- Why look at Drupal 8
- Custom LMS Drupal 7 architecture
  - Features
  - Content strategy
  - Modules used
  - Custom development
- Considerations Building with Drupal 8
  - Architectural differences
  - UI Changes
  - Module availability
  - Specifically What needs to change

Hello My Name Is Frank

I am a Father, and Technology Enthusiast.

- *Online my name is* **frob** (IRC, d.o, github)
- *On Twitter I am* **@frobdfas**
- *My Blog is* www.frobiovox.com
- *I work for* Clarity Innovations Inc.

Clarity Innovations


New Perspectives Online
A PERSONALIZED PROFESSIONAL SUPPORT SYSTEM™
Hello, Test - Oregon
My account
Log out
CFLM UNIT SUPPORT
DIGGING DEEP COURSES
FORUMS
GLOSSARY
MY PLC
Welcome! Begin here to view videos and participate in activities supporting your work with the Contexts for Learning Mathematics. Or you may wish to visit Digging Deep, to study more intensely with us. Enjoy, and don't be shy about letting us hear from you in the Forum!
School Announcements
This is a test school for Clarity Innovations' internal use.
CFLM UNIT SUPPORT
DIGGING DEEP COURSES
Grades K to 3
Grades 3 to 5
Grades 4 to 6
Minilessons and Representation
Questioning and Conferring
Deepening My Math
Filling Out the Landscape
The Role of Context
Proof
FORUMS

Why do this?

- I create with Drupal 7.
- I want to create with Drupal 8.
- I want to know the differences between creating with Drupal 7 vs 8.
- I would like to know how I can leverage the new features of Drupal 8 in complicated information systems.

Lets go from:

To:

Custom LMS Architecture

Learning Management System

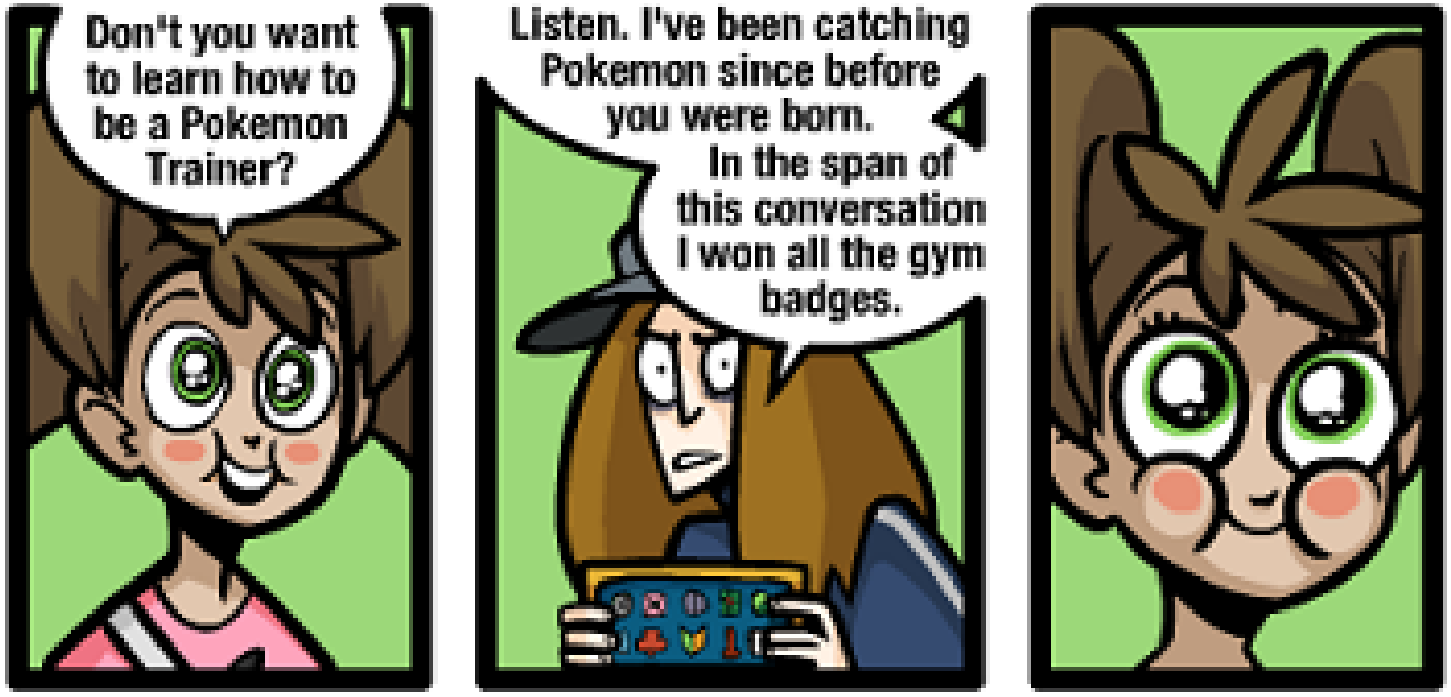
An LMS is software that allows for the organization and delivery of courses or training programs.

Traditional LMS

- Curriculum or Lesson plan
  - Unit or Module
    - Lesson/Project/Assessment/Mini-lessons

Our custom LMS is structured

- Module -> Menu
  - Segments -> Nodes or Content Type
    - Components -> Paragraphs Items


Don't you want to learn how to be a Pokemon Trainer?
Listen. I've been catching Pokemon since before you were born.
In the span of this conversation I won all the gym badges.

Basic Drupal Content Architecture

- Entities
- Fields
- Variables

Entities

Entities are things in Drupal; things do not have to be nodes.

Bundles and Fields

- A bundle is a collection of fields instances on an Entity
- A field instance is a place for complex data in a Entity Bundle
- A property is simple storage for Entity level data

Properties

Properties are linked to an Entity, such as Node. Fields are linked to the Bundle, such as Content Type.

Properties are stored on the entity's table and fields are stored in their own table.

Variables

Variables are what Drupal 7 provides for configuration --when it isn't a custom table.

LMS Features

Support Backwards Design philosophy

Goals of lesson planning

- Engage
- Explore
- Explain
- Elaborate
- Evaluate

LMS Lesson Goals

- Teaching
- Application
- Assessment

Drupal 7 Modules Used

Frank's list of modern site building tools

Paragraphs

Paragraphs allows us to create collections of fields. Each collection type is its own bundle and can have its own fields.

Entity Form

Named eForm in Drupal 8. Allows the use of the field api to create webform and have the submissions be entities.

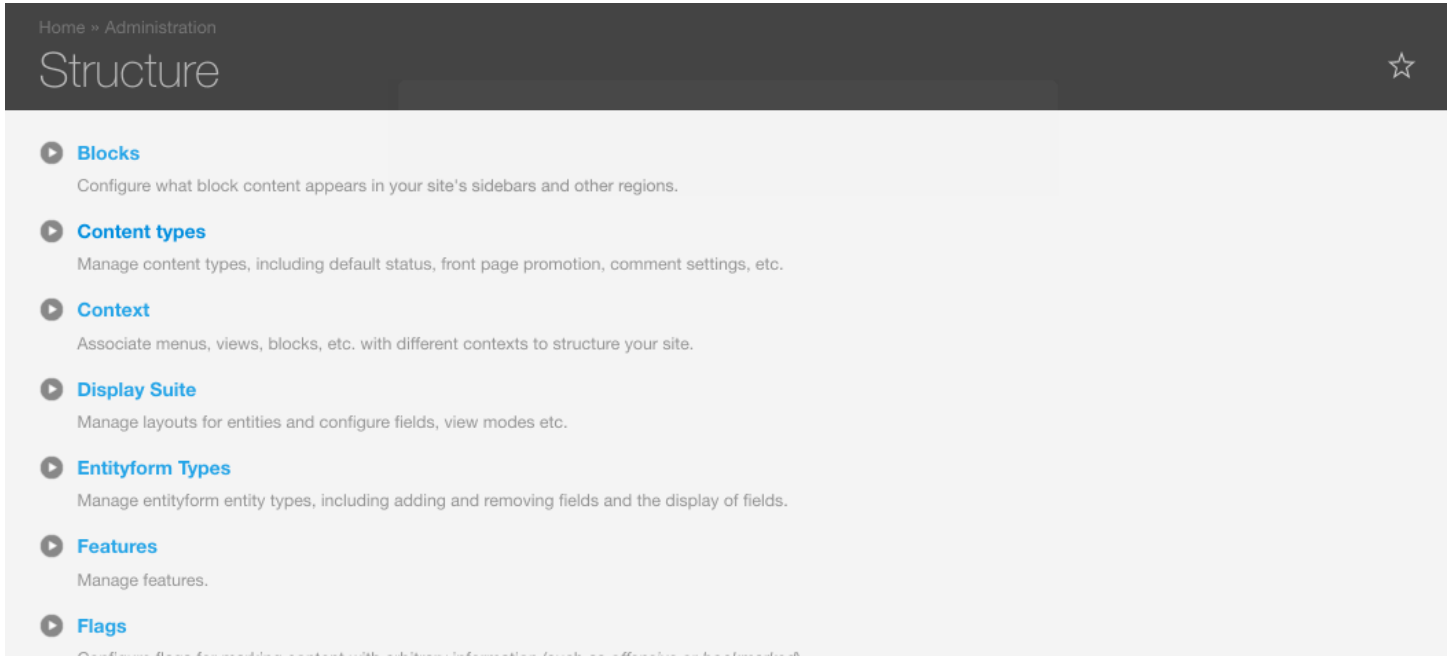
Eva

Solves the problem of putting views into entities as pseudo-fields.

Flag

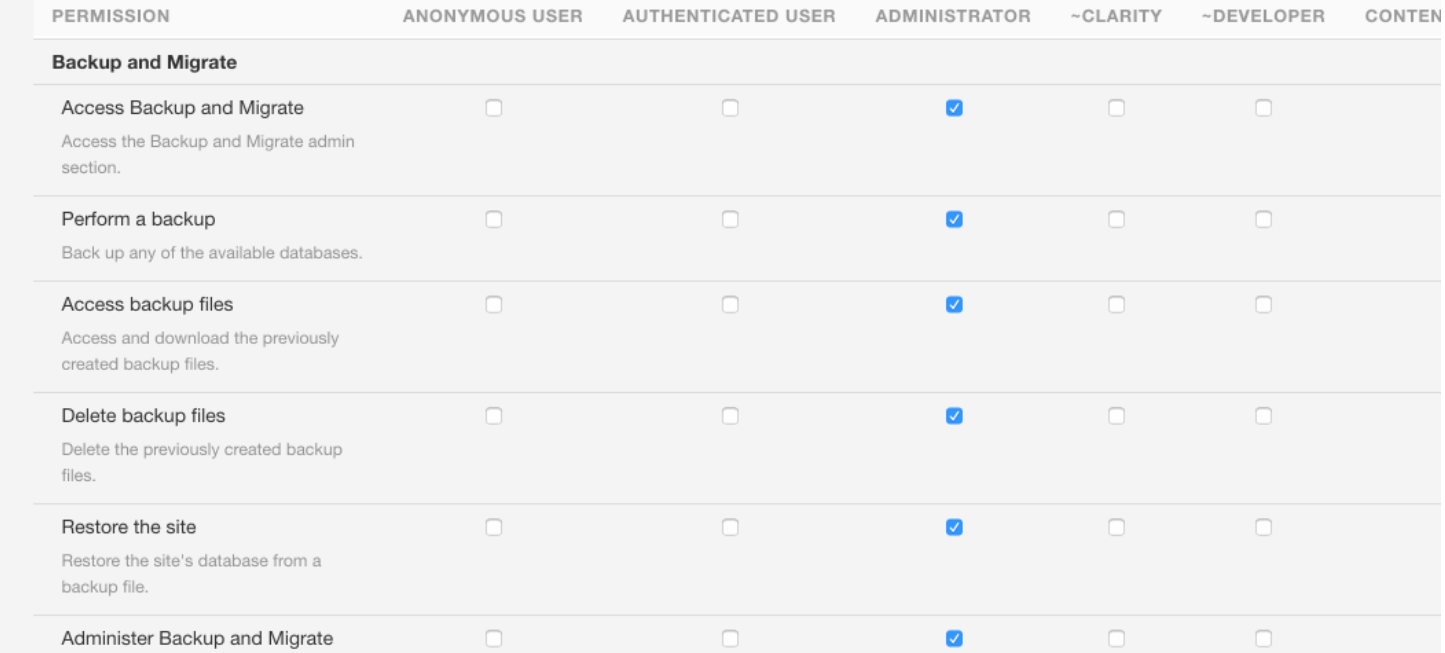
This module allow users to flag things. Largest use is probably the "Flag this as inappropriate" functionality.

Coffee



Coffee works like Unity for Ubuntu or Spotlight search for Mac, or the Start Menu in Windows. Just start typing and a list of options will be presented. Pick the option and it will take you there.

Speedboxes



PERMISSION	ANONYMOUS USER	AUTHENTICATED USER	ADMINISTRATOR	~CLARITY	~DEVELOPER	CONTEN
Backup and Migrate						
Access Backup and Migrate Access the Backup and Migrate admin section.	☐	☐	☑	☐	☐	
Perform a backup Back up any of the available databases.	☐	☐	☑	☐	☐	
Access backup files Access and download the previously created backup files.	☐	☐	☑	☐	☐	
Delete backup files Delete the previously created backup files.	☐	☐	☑	☐	☐	
Restore the site Restore the site's database from a backup file.	☐	☐	☑	☐	☐	
Administer Backup and Migrate	☐	☐	☑	☐	☐	

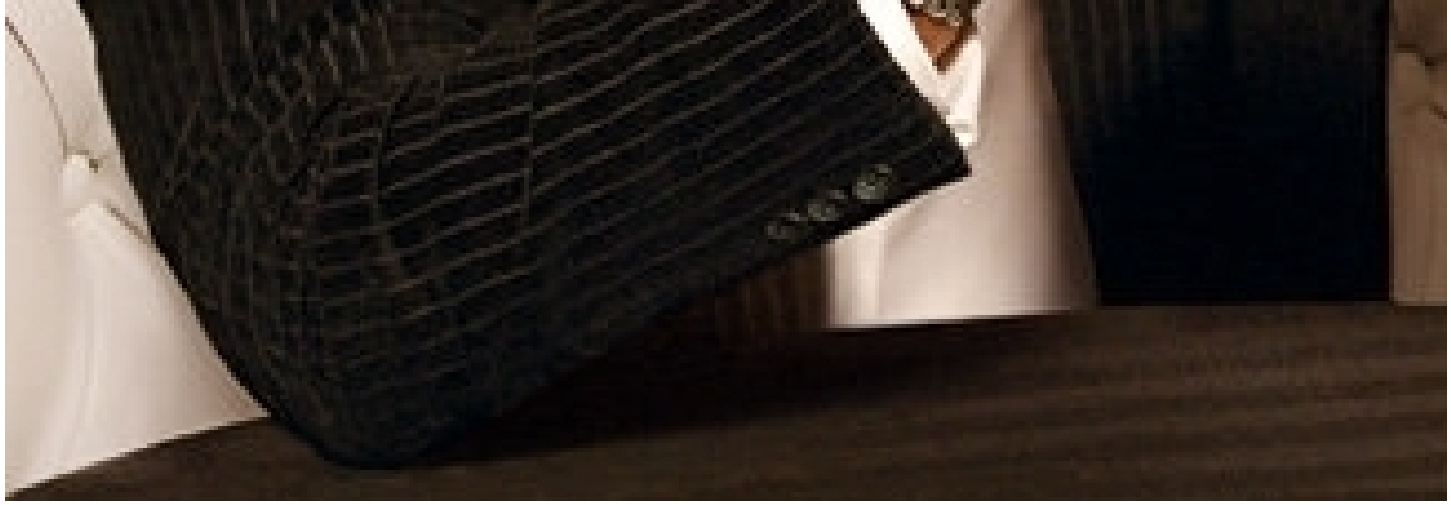
Check more than one box with a click and drag mechanic.

A word on Blocks

Bean

Bean is an acronym that stands for:

Block **E**ntities **A**ren't **N**odes.



LMS Content Strategy

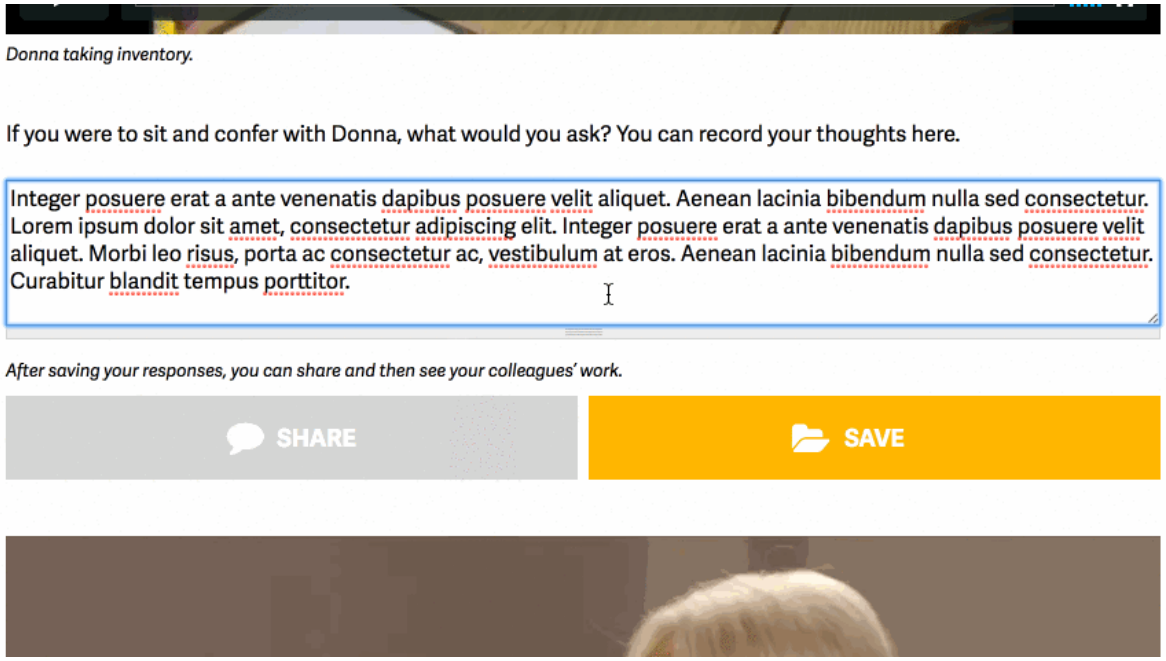
Arguably, the most important part of a site.

13 paragraphs types and 1 content type

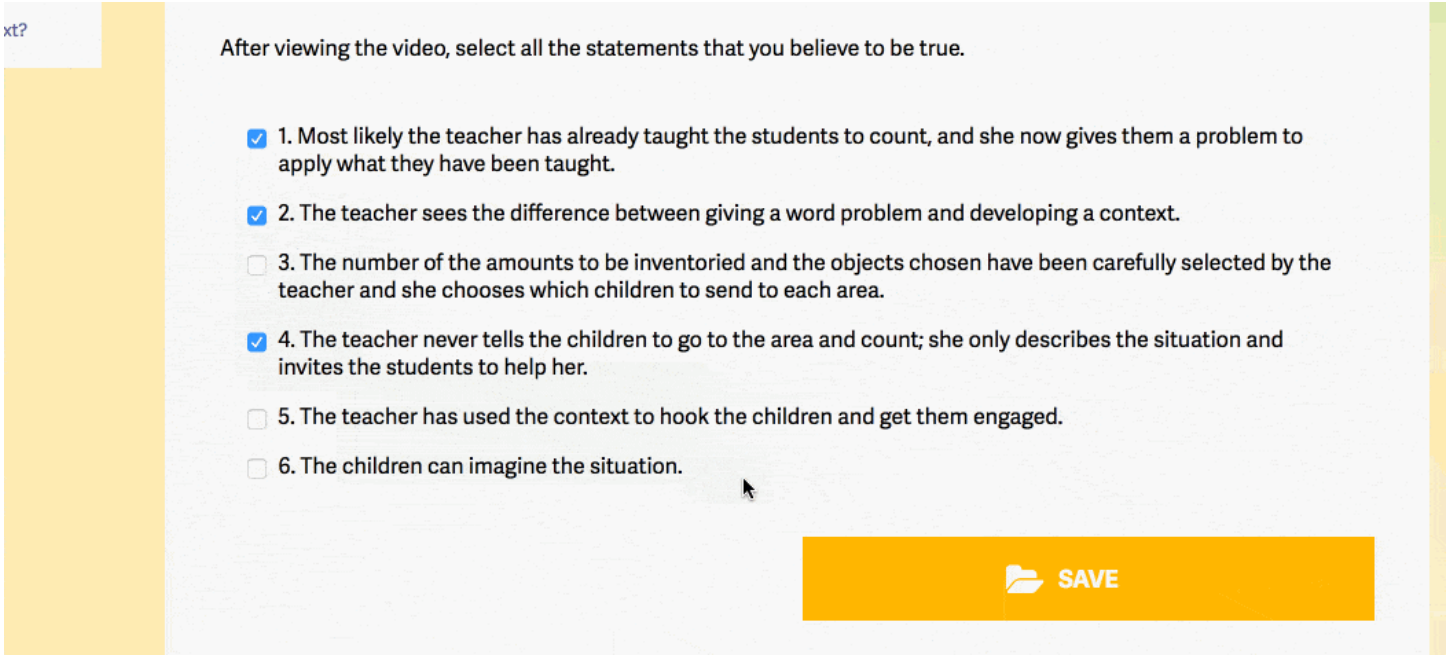
Three where interactive

- Text response
- Checkbox list
- Drag and Drop

Text response



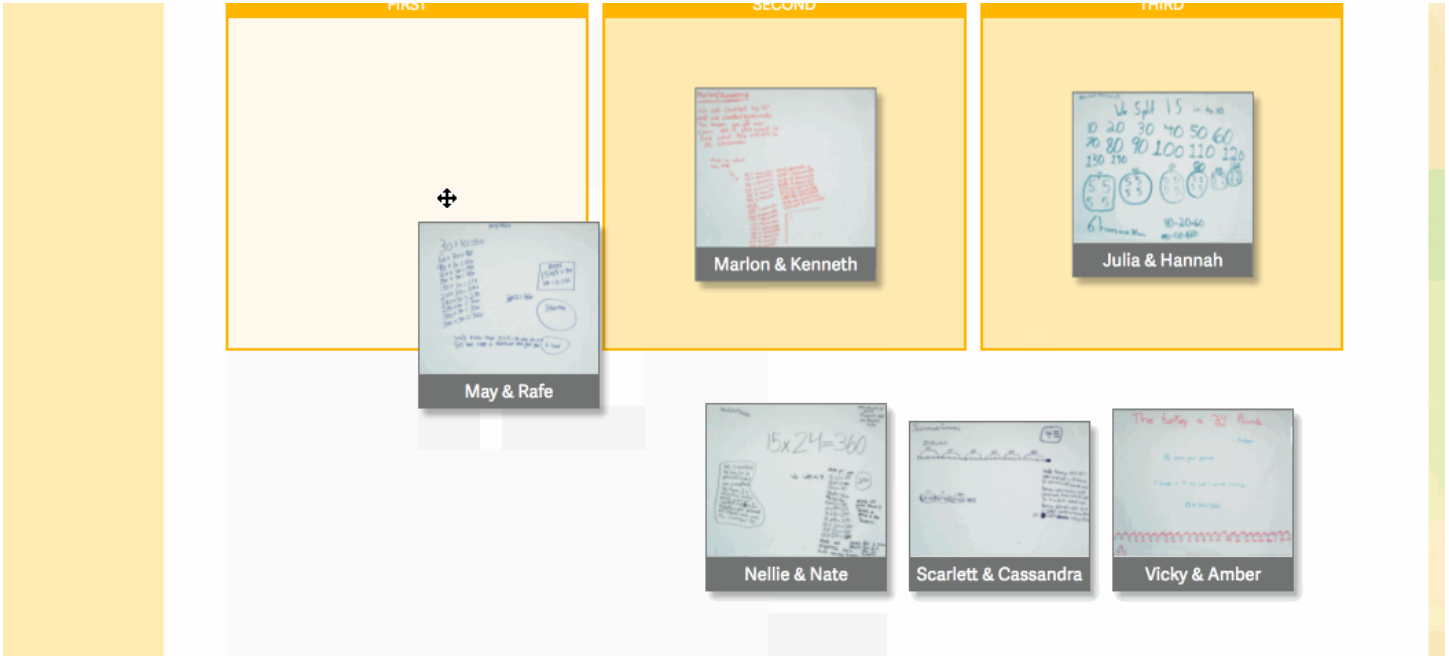
Checkbox list



Drag and Drop

The rest are multimedia/content.

Everything can be *combined* to form larger whole components.



Linking the EntityForm Submission to the Paragraph item

Entity	Machine Name
Paragraph Type	text_response
EntityForm Type	text_response

Evaluation

Sharing via Flags on the paragraphs items

Explain your thinking about your work sample selections, and your choice of sequence. Save your work, then decide if you would like to share your responses with your colleagues.

Integer posuere erat a ante venenatis dapibus posuere velit aliquet. Aenean lacinia bibendum nulla sed consectetur. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer posuere erat a ante venenatis dapibus posuere velit aliquet. Morbi leo risus, porta ac consectetur ac, vestibulum at eros. Aenean lacinia bibendum nulla sed consectetur. Curabitur blandit tempus porttitor.

After saving your responses, you can share and then see your colleagues' work.

UNSHARE | SAVE

I selected Vicky and Amber's first because of the skip counting by 15 on the open number line. (I did not choose Julia and Hannah's because this was a strategy used and discussed earlier in the unit and I want to

I would start with Nellie and Nate to show that 15 can be grouped into meaningful ways (15 and 15 = 30). I would then move to Scarlett and Cassandra, to show another way to make meaningful groups of 15 to

I would start with Vicky and Amber, then Scarlett and Cassandra to focus discussion on how groups could be regrouped, then I would go to May and Rafe to discuss how regrouping groups could be formalized

Custom Development

Pass the build to custom function

```
if (!empty($build['#bundle'])) {
  $bundle = $build['#bundle'];
  if (function_exists("_component_{$bundle}_alter")) {
    // We need to pass build in an array in order to tri
    // into passing the build by reference.
    call_user_func("_component_{$bundle}_alter", array(&
  }
}
```

Text response callback

```
/**
 * Implements custom _component_TYPE_alter().
 */
function _component_text_response_alter(&$build) {
  if (isset($build[0]['#entity']) && !empty($build[0]['#enti
    module_load_include('inc', 'entityform', 'entityform.adm
    $entity_form_name = 'text_submissions';
    $component_id = $build[0]['#entity']->item_id;
    $entity = $build[0]['#entity'];
    $form = _get_entityform(entityform_empty_load($entity_fo
    $form['field_component_submission']['#attributes']['clas
    // ... Other Stuff ...
    $form['field_text_response_submission']['#attributes']['
    $form_rendered = drupal_render($form);
```

Considerations Building a LMS with Drupal 8

- Architectural differences
- UI Changes
- Module availability
- Specifically What needs to change
  - Architecture
    - Custom Development
      - Content strategy

General Drupal 8 Considerations

- Setup the devel module
- It is now cache rebuilding
- Modules cannot be disabled
- Enable Developer Mode
- Beware of online sources

Architectural Differences

- Configuration Entities
- Semantic Versioning
- Blocks
- View Modes
- New field types (entity reference, link, telephone)

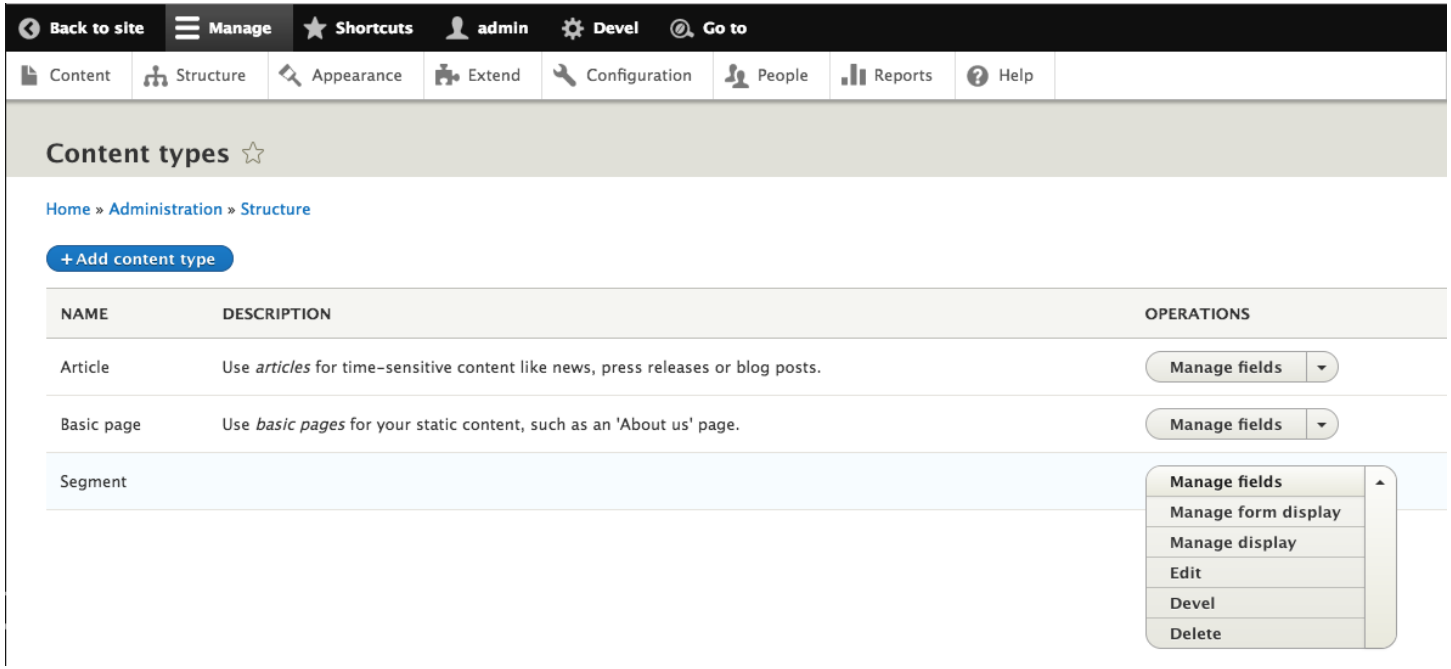
Things to google (many have been backported to Drupal 7)

- Composer support
- Toolbar update (Navbar in Drupal 7)
- Responsive Image Styles (Picture Module in Drupal 7)
- File Entities
- RESTful api
- Experimental Core Modules
- Content Moderation
- etc...

UI Changes

Good News! Not much has changed significantly in the UI. I guess that could be bad new too.

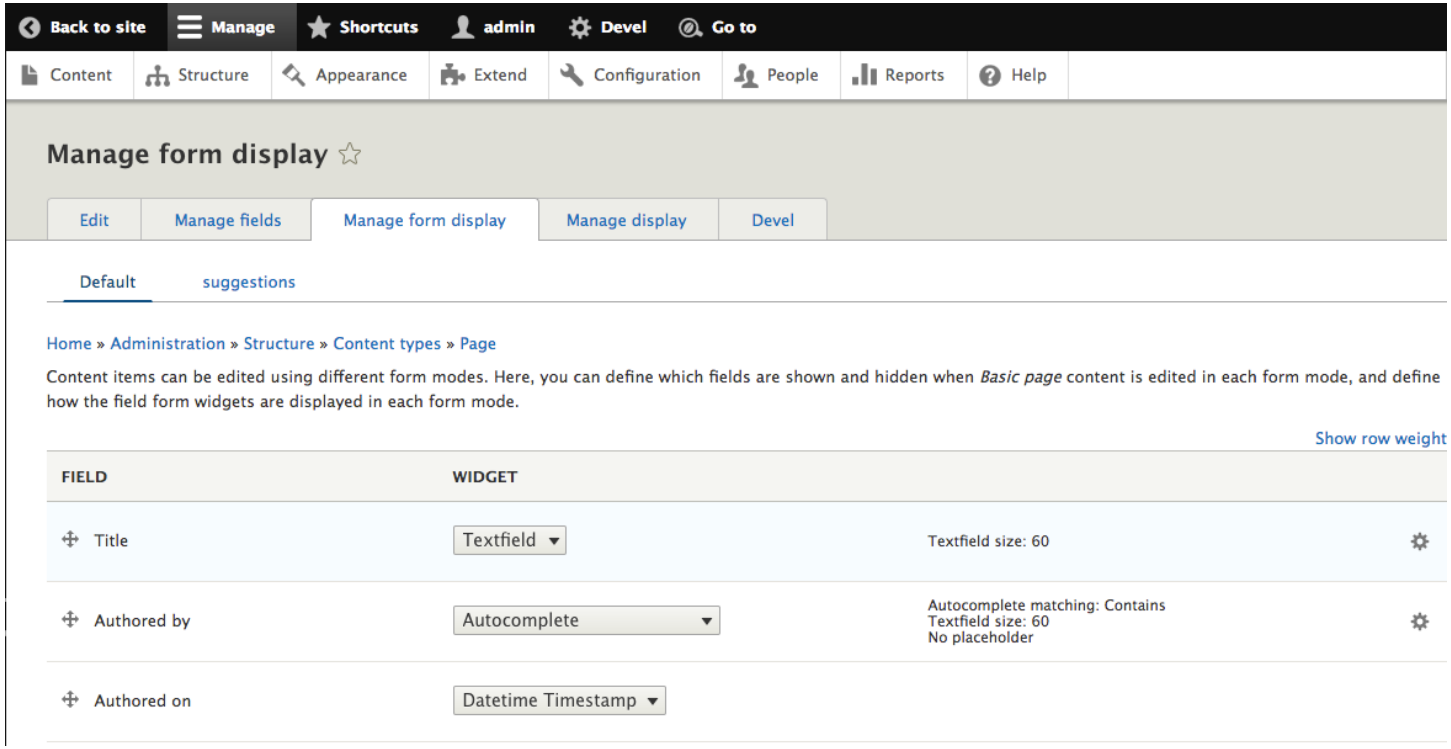
Operations



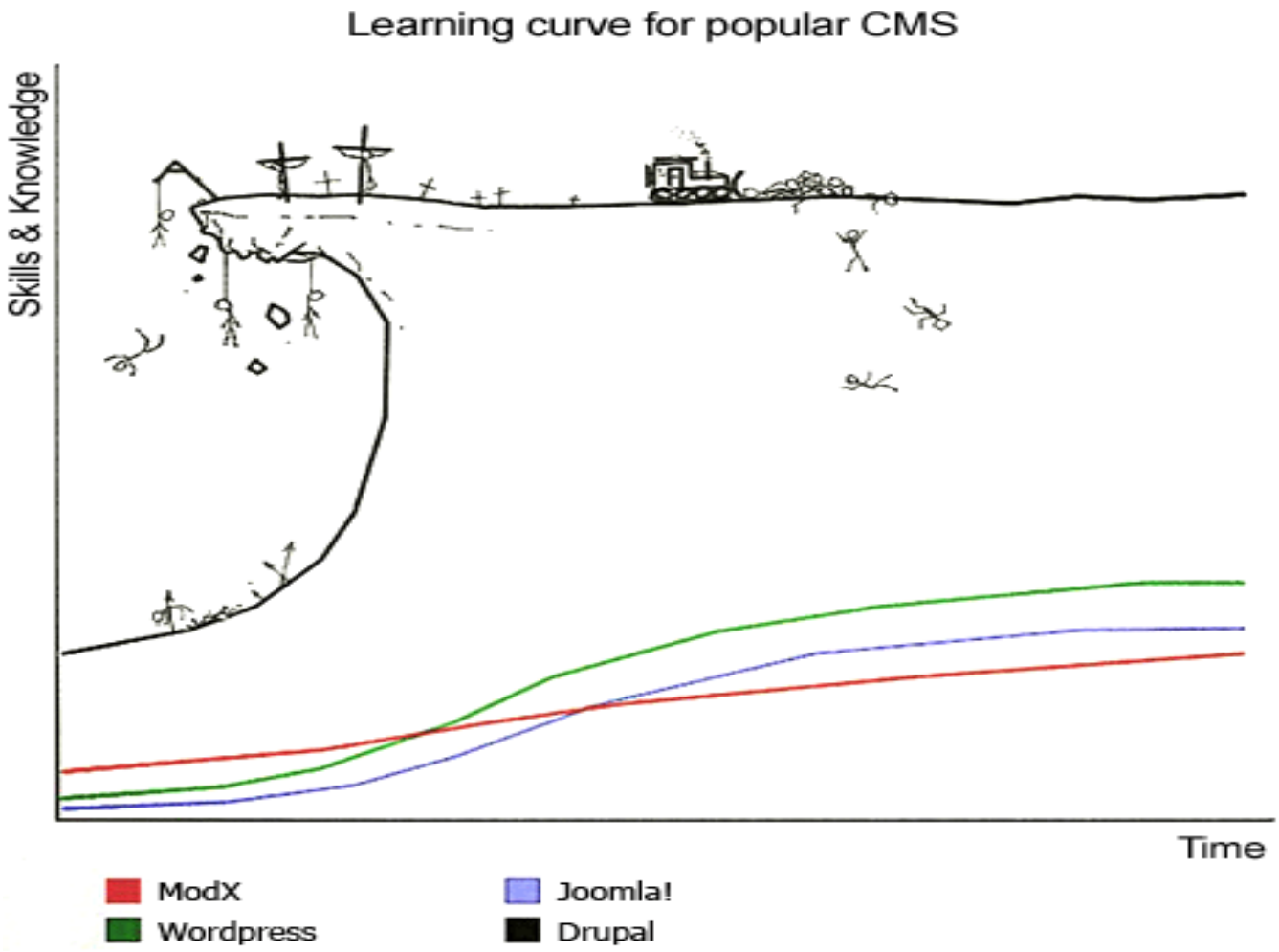
New Drop down thingy for selecting what we are doing to a thing.

Form Display Settings

Multiple entity form settings on the Manage form display page, this includes field widget settings.



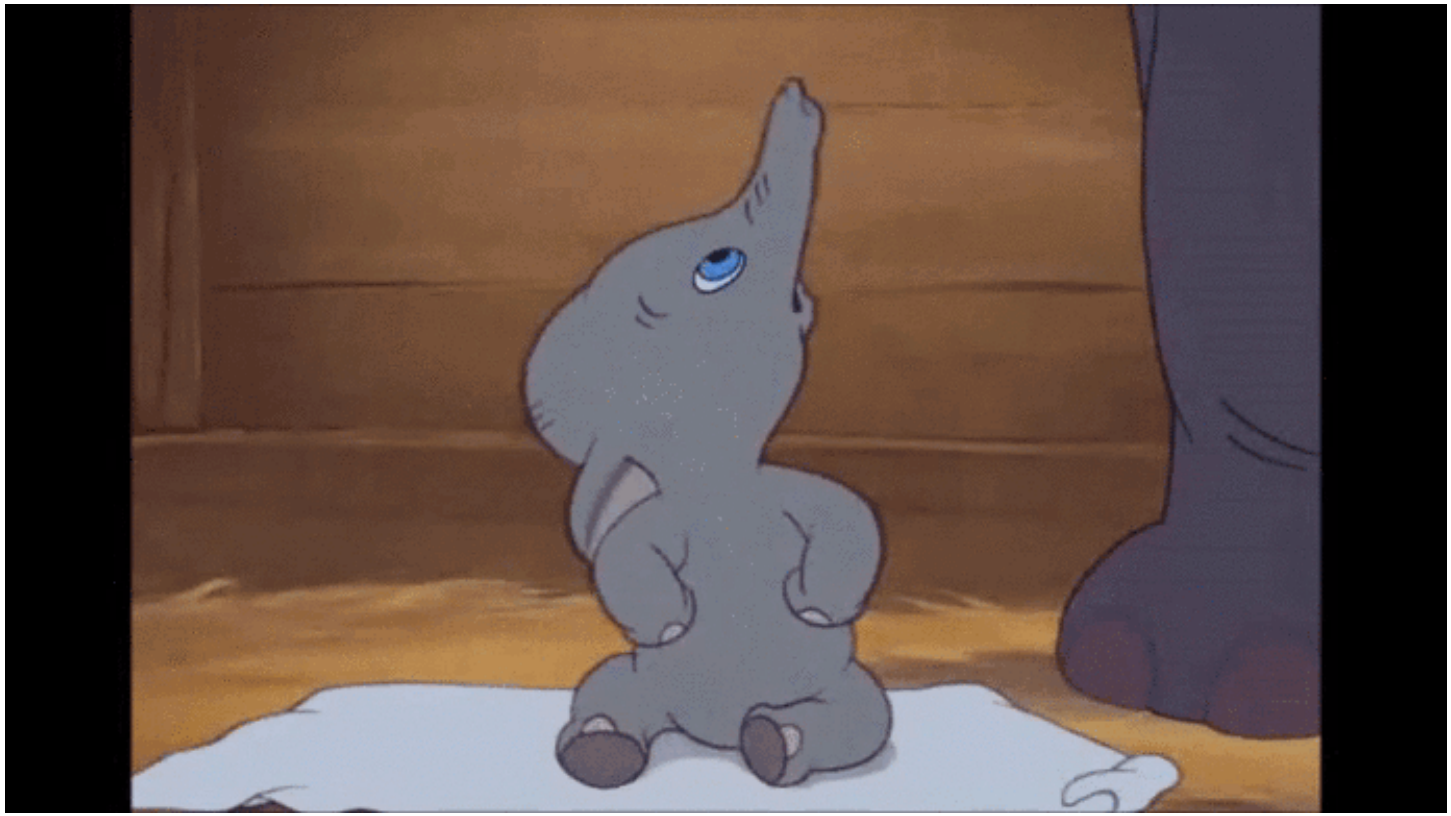
Good news about learning curves



Module Availability

- Big problem
  - EntityForm is not supported on Drupal 8
    - Find an alternative
      - Custom Entity
      - Comment module
      - Contact module extras
      - Relation module
      - Fund the development of a stable release

- Second problem
  - Paragraphs doesn't want me to reference paragraphs
  - It is possible, but requires use of the EXPERIMENTAL field widget.
  - In this case the problem wasn't the module but my own unfamiliarity and over confidence. The answer was staring me in the face.



Specifically What needs to change

Not Much

Architecture & Content Strategy

Mostly the same

- Same Features
- Same Modules
- Same Architecture
- Same Strategy

Custom Development

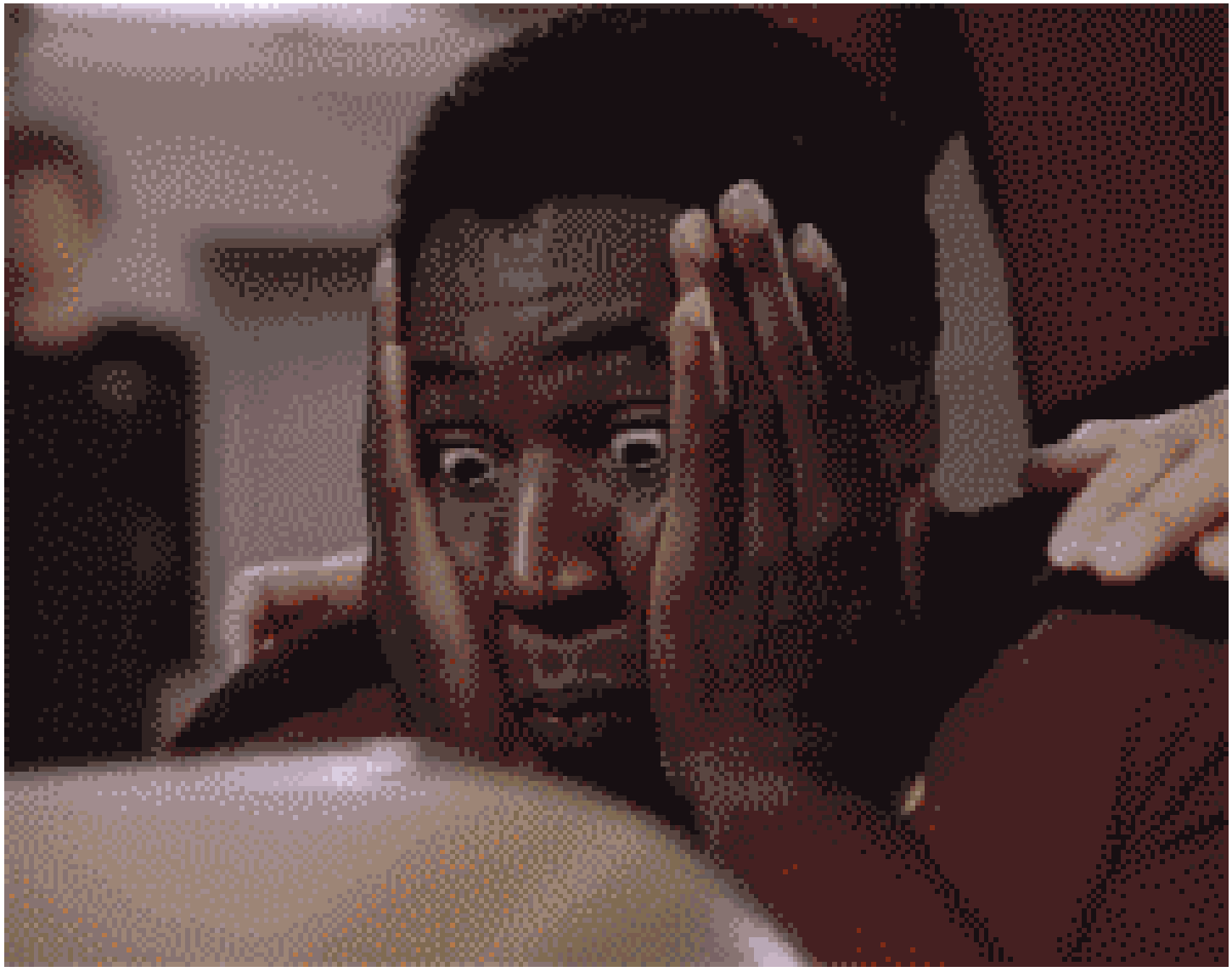
Biggest Changes

Custom Development

This is where the largest changes where made.

Not Much

- We still use hook_entity_view_alter
- We still use hook_form_alter



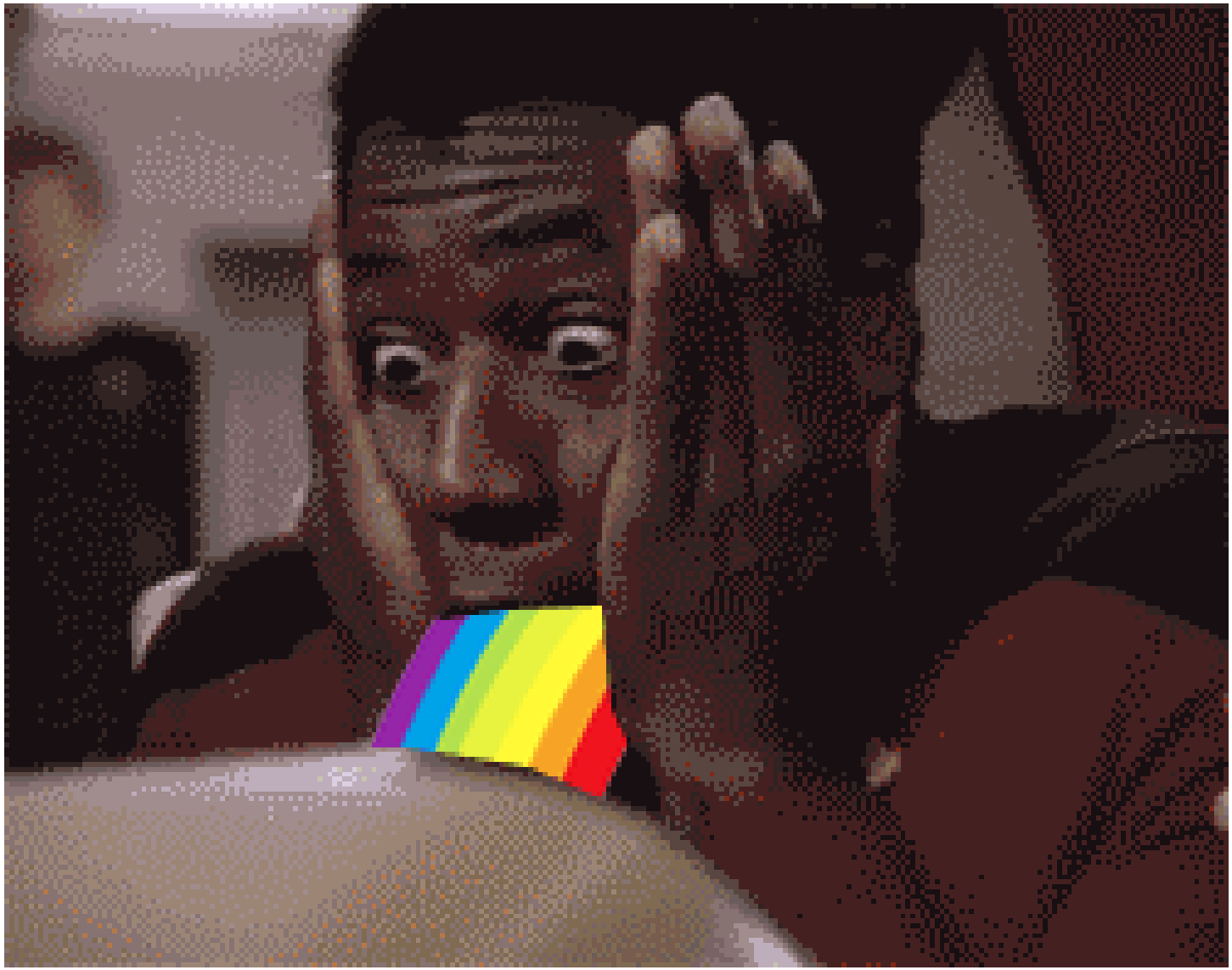
Okay, really lots

But all good!

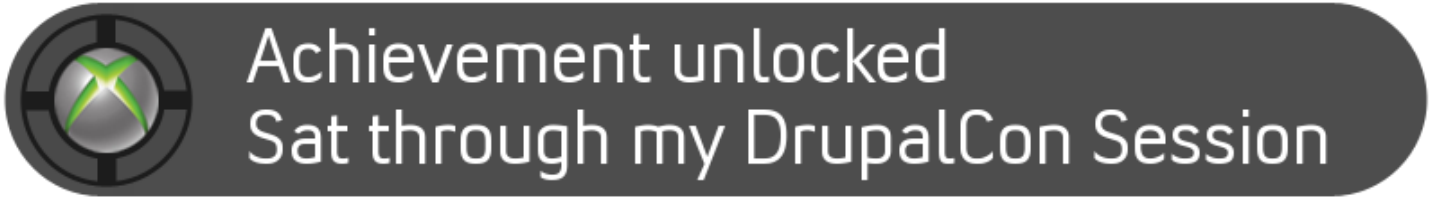
Drupal 8 version:

```
// This creates a new eform submission.
$eform_submission = \Drupal::entityTypeManager()
  ->getStorage('eform_submission')
  ->create(['type' => 'multiple_choice_question']);
// This loads an existing eform submission.
$submitted_eform = \Drupal::entityTypeManager()
  ->getStorage('eform_submission')->load(2);
// Either way we build the form with a call to the entity.fo
$form = \Drupal::service('entity.form_builder')
  ->getForm($submitted_eform);
// Then we append it to the render array.
$build[] = $form;
```

- No more Drupal 7 non-existent entity api
- Drupal 8 has intelligent use of OOP that makes site building easier
- Over 100 lines of code is reduced to under 10



- Why look at Drupal 8
- Custom LMS Drupal 7 architecture
- Considerations Building a with Drupal 8
  - Architectural differences
  - UI Changes
  - Module availability
  - Specifically What needs to change
- Conclusion <-- **Achievement unlocked**



Don't take stuff so seriously, remember...
You are here.

When are sprints?

April 24-27: Sprint Lounge at Baltimore Convention Center

April 28: **Sprint Day** - General Sprints, Mentored Core Sprint, **First-Time Sprinter** Workshop at Baltimore Convention Center

We also provide a 24-hour Sprinter Lounge that opens on April 24th at 7:00pm and will close on Thursday, April 27th at midnight. The Sprinter Lounge will be located at the **Hilton Baltimore (401 West Pratt Street) in room Peale A-C**.

Based on community feedback and input from the Sprint Leads, we understand the need for 'shorter sprints with greater support', and as a result will **not** be hosting Extended Weekend Sprints at this DrupalCon.

Don't forget to give me feedback

node/17242