A Journey into the Front-End with the D2L API

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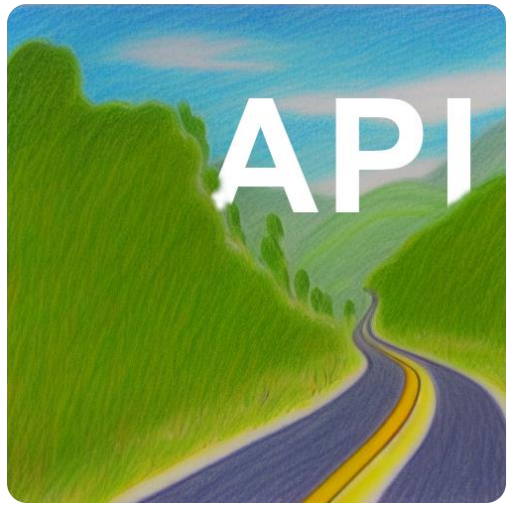


API Projects

1. Customisable unit level progress
2. On-page Discussions
3. Visualisation of Awards

Our Goals

Delivering high quality flexible & personalised learning

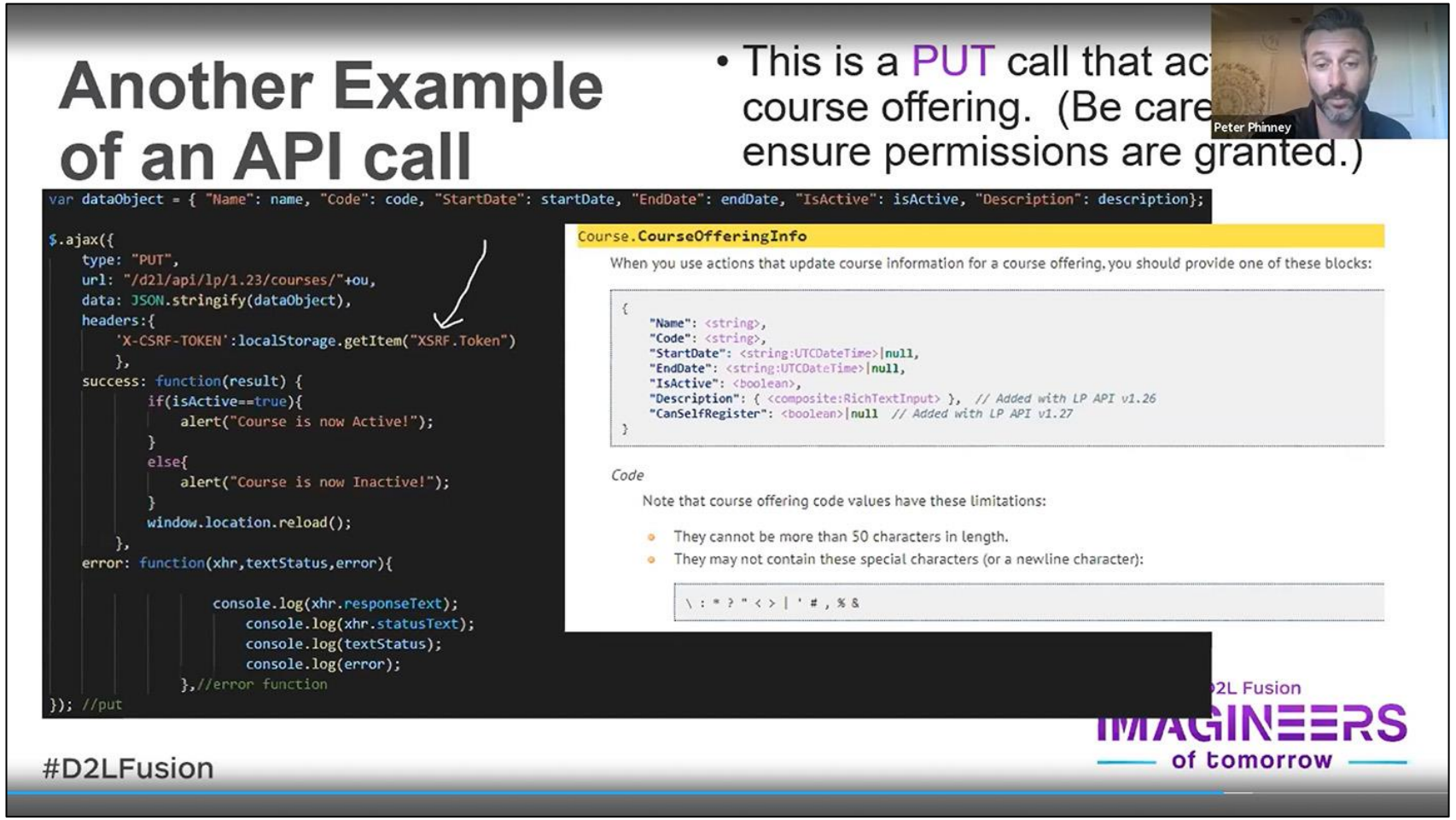
- Enhancing the student experience
- Promoting interaction / driving engagement
- Wider adoption of Awards

What was used

- HTML / CSS
- jQuery / JavaScript
- The Brightspace API (https://docs.valence.desire2learn.com)
- A ton of inspiration from D2L Fusion 2021 – in particular the presentation by Peter Phinney (Greater Essex County District School Board, CA)

The Source

July 2021



Day 1…

- Recreate the **WHOAMI** example

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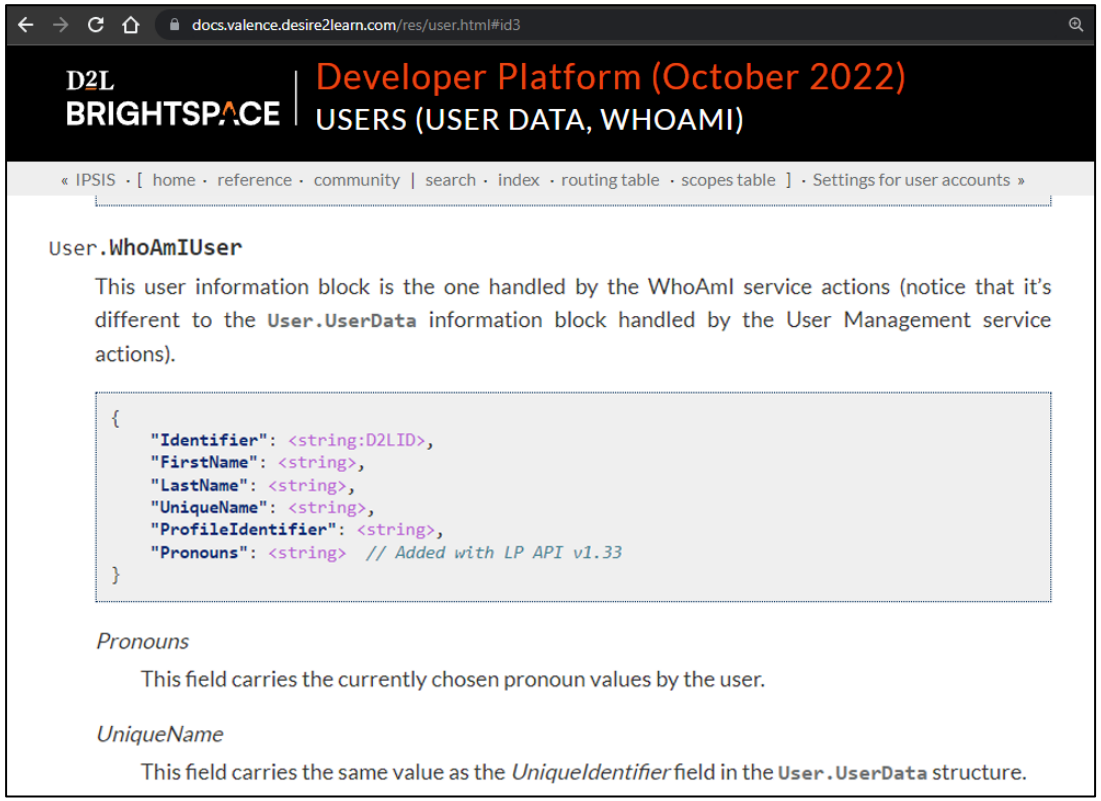
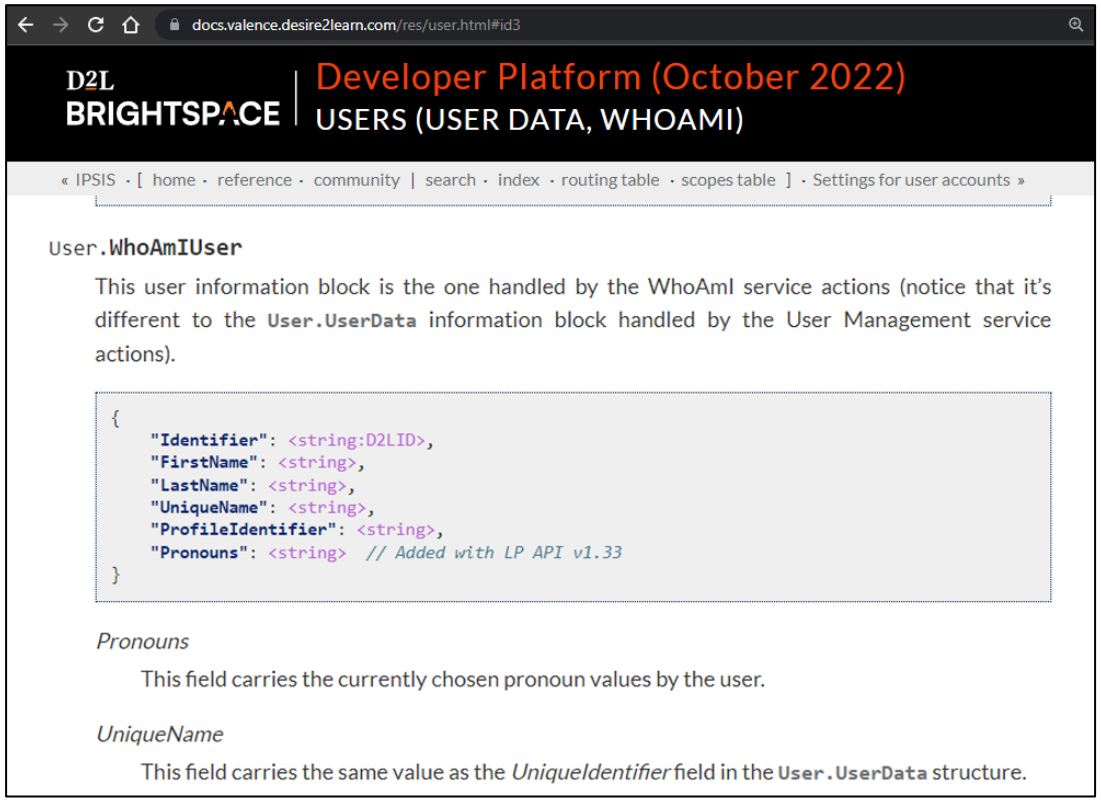


https://docs.valence.desire2learn.com/

Day 1…

- Recreate the **WHOAMI** example

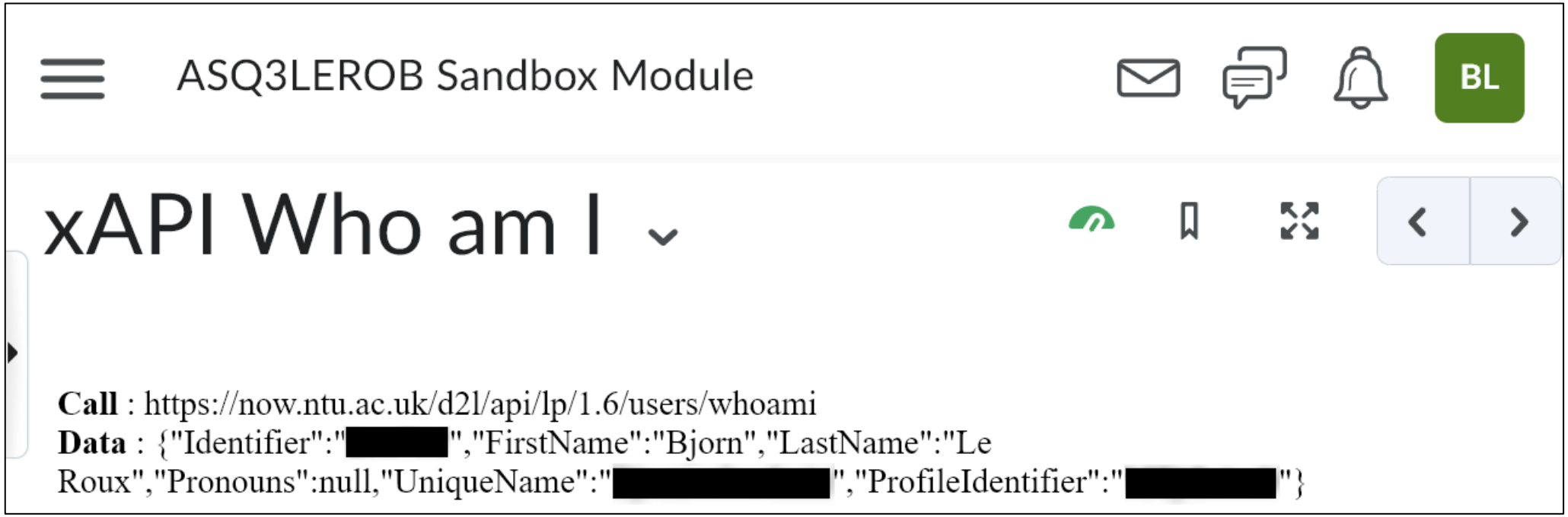


+

```
let reqURL = "https://now.ntu.ac.uk/d2l/api/lp/1.6/users/whoami";
$.ajax({
    url: reqURL,
    method: 'GET',
    headers: {
        'X-CSRF-TOKEN':localStorage.getItem("XSRF.Token")
    },
    success: function(result) {
            console.log(result); //Do something with the result
    },
    error: function(xhr, textStatus, error) {
        console.log(xhr.responseText,
                    xhr.statusText,
                    textStatus,
                    error);
    }
});
```

Day 1…

- Recreate the **WHOAMI** example



Day 1…

- Is it possible to read the **Content Structure**?

`GET /d2l/api/le/(version)/(orgUnitId)/content/toc`

Retrieve the table of course content for an org unit.

Parameters:
- **version** (D2LVERSION) – API version.
- **orgUnitId** (D2LID) – Org unit ID.

Query Parameters:
- **ignoreModuleDateRestrictions** (*boolean*) – (Optional) Include content modules where date restriction would otherwise hide them from view.
- **userId** (D2LID) – (Optional) Fetch the table of course content as it would be viewed by this user.
- **moduleId** (D2LID) – (Optional) ModuleId used for filtering.
- **title** (*string*) – (Optional) Topic or module title used for filtering

Oauth2 Scopes: *content:toc:read*

Status Codes:
- 200 OK – Action succeeded.
- 400 Bad Request – Provided user ID not enrolled in the provided org unit.
- 403 Forbidden – No permission to view course content, or no permission to view table

NTU

Day 1…

- Is it possible to read the **Content Structure**?

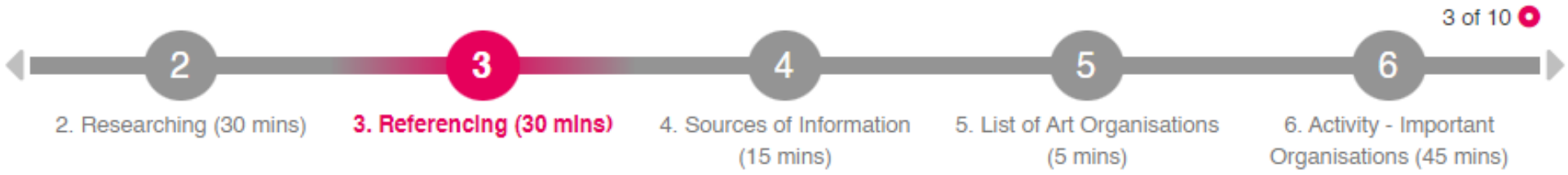
```
{
   "Modules": [ // Array of Module blocks
        {
            "ModuleId": <number:D2LID>,
            "Title": <string>,
            "Modules": [ // Array of child Module blocks
                {
                    "ModuleId": <number:D2LID>,
                    "Title": <string>,
                    "SortOrder": <number>,
                    "StartDateTime": <string:UTCDateTime>|null,
                    "EndDateTime": <string:UTCDateTime>|null,
                    "Modules": [ { <composite:ToC.Module> }, ... ],
                    "Topics": [ { <composite:ToC.Topic> }, ... ],
                    "IsHidden": <boolean>,
                    "IsLocked": <boolean>,
                    "PacingStartDate": <string:ISODate>|null,
                    "PacingEndDate": <string:ISODate>|null,
                    "DefaultPath": <string>,
                    "LastModifiedDate": <string:UTCDateTime>|null
                },
                { <composite:Module> }, ... ],
            "Topics": [ // Array of Topic blocks
                {
                    "TopicId": <number:D2LID>,
                    "Identifier": <string:D2LID>,
                    "TypeIdentifier": <string>,
                    "Title": <string>,
                    "Bookmarked": <boolean>,
                    "Unread": <boolean>,
                    "Url": <string>,
                    "SortOrder": <number>,
                    "StartDateTime": <string:UTCDateTime>|null,
                    "EndDateTime": <string:UTCDateTime>|null,
                    "ActivityId": <string>|null,
                    "CompletionType": <number:CONTENT_COMPLETIONTYPE_T>,
                    "IsExempt": <boolean>,
                    "IsHidden": <boolean>,
                    "IsLocked": <boolean>,
                    "IsBroken": <boolean>,
                    "ToolId": <number:D2LID>|null,
                    "ToolItemId":  <number:D2LID>|null,
                    "ActivityType": <number:ACTIVITYTYPE_T>,
                    "GradeItemId": <number:D2LID>|null,
                    "LastModifiedDate": <string:UTCDateTime>|null,
                    "StartDateAvailabilityType": <AVAILABILITY_T>|null,  // Available in LE's unstable contract
                    "EndDateAvailabilityType": <AVAILABILITY_T>|null  // Available in LE's unstable contract
                },
                { <composite:Topic> }, ... ]
        },
        { <composite:Module> }, ... ]
}
```

```
"Topics": [ // Array of Topic blocks
    {
        "TopicId": <number:D2LID>,
        "Identifier": <string:D2LID>,
        "TypeIdentifier": <string>,
        "Title": <string>,
        "Bookmarked": <boolean>,
        "Unread": <boolean>,
        "Url": <string>,
```

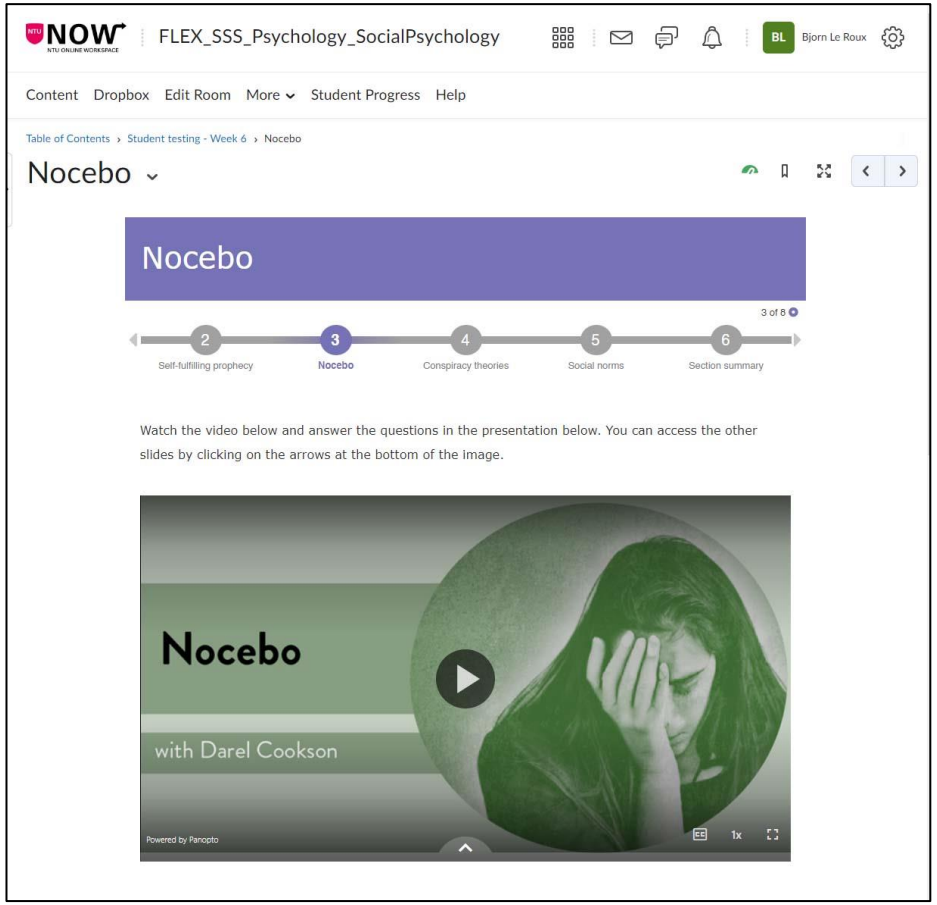
ToC.**TableOfContents**

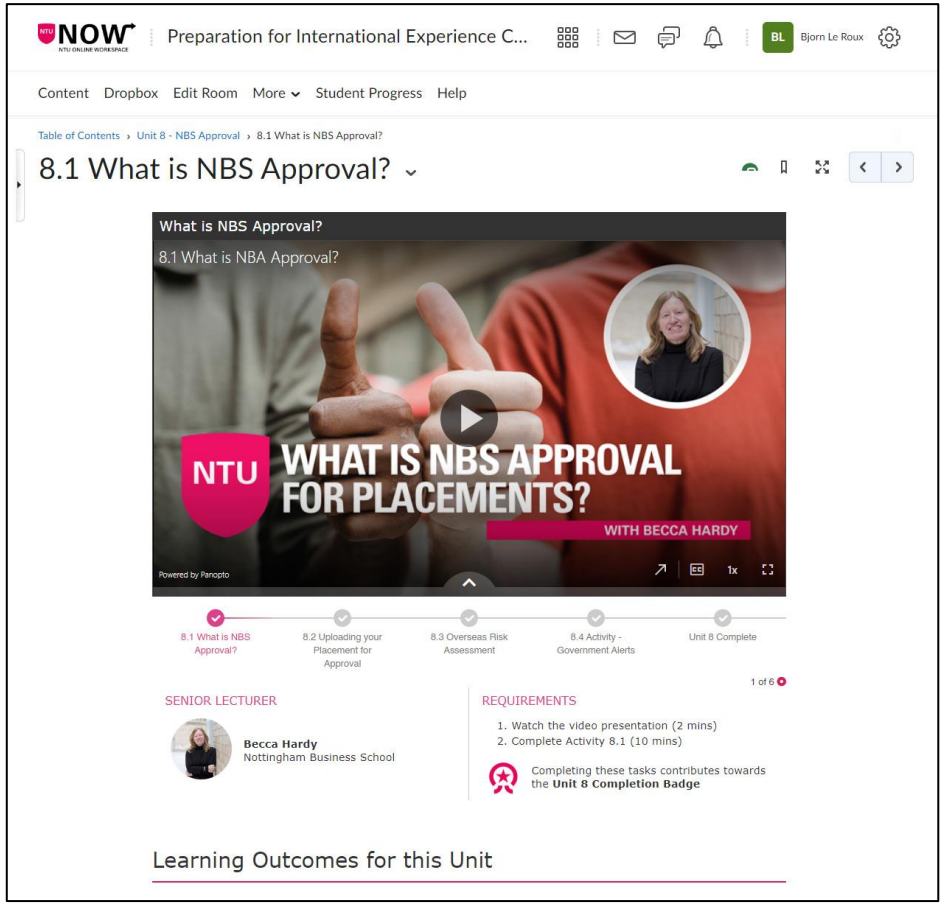
1. Customised module progress

- An alternative method for showing module progress
- Contextualise where content exists within a unit
- Customisable – consistent experience for Flex developments
- Automatically updated

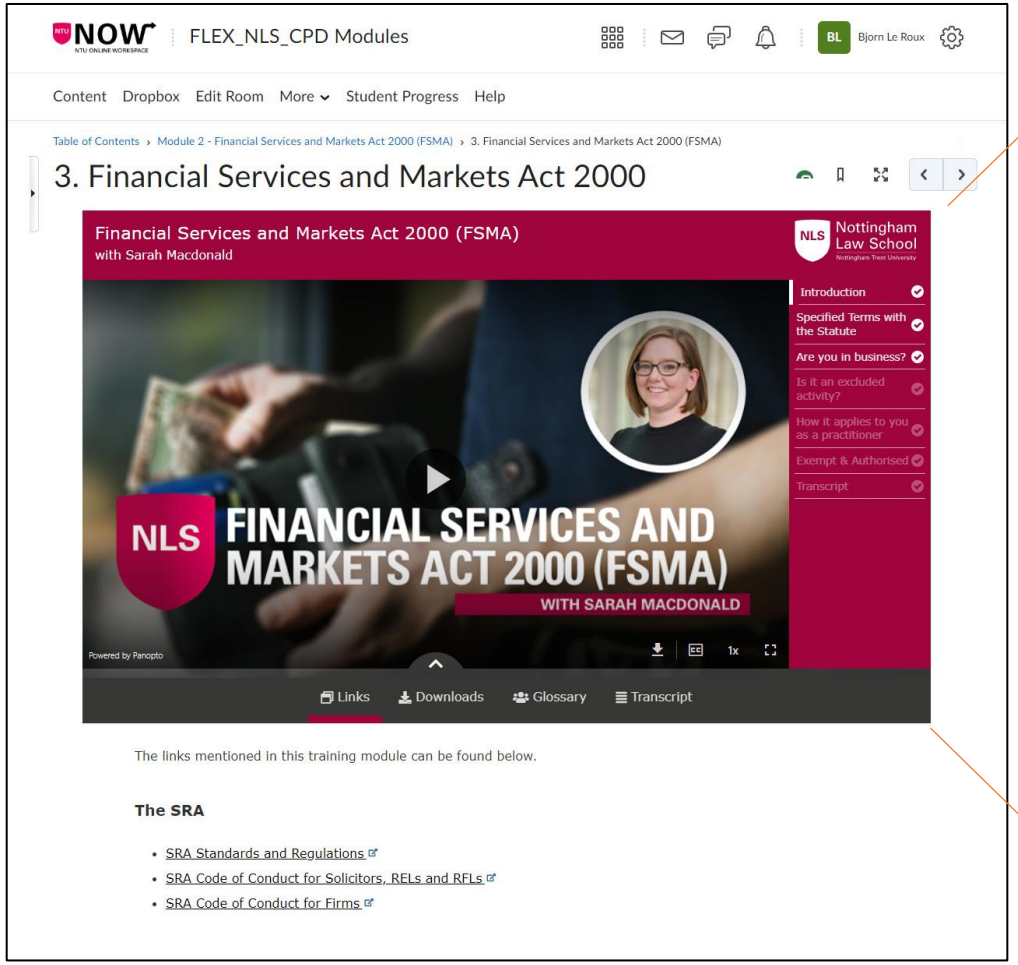


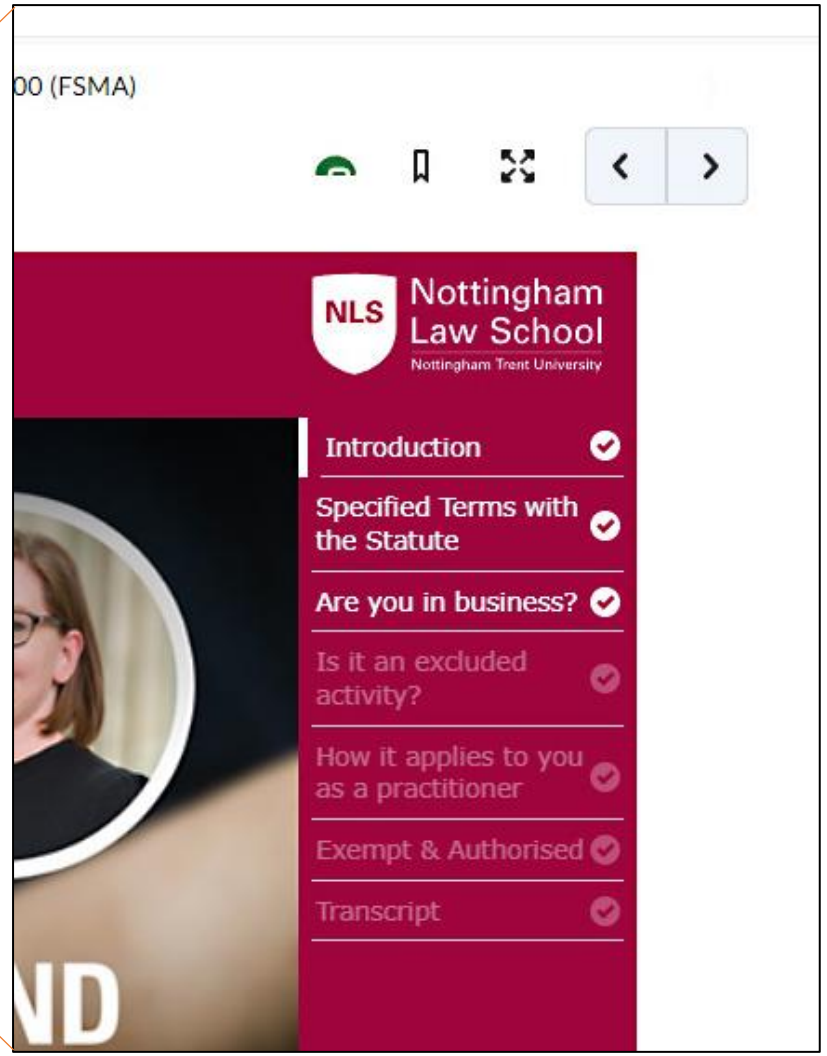
1. Customised module progress





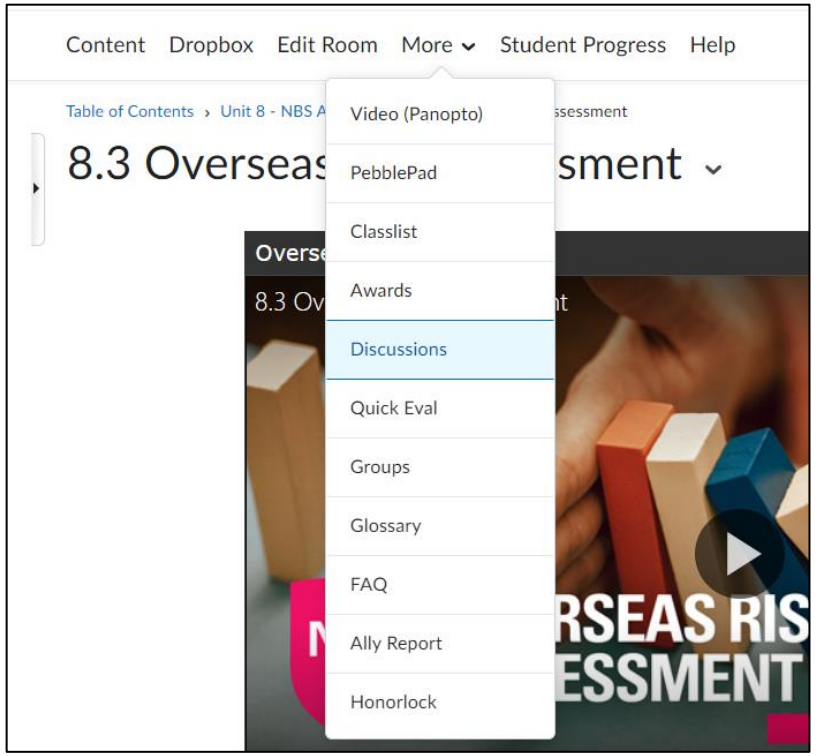
1. Customised module progress





2. On-page Discussions

- Increase engagement with discussions
- Bringing the conversation to the content
- Promote discussion through relevance & immediacy



Day 55…

- How much access do we have to **discussions**?

GET /d2l/api/le/(*version*)**/**(*orgUnitId*)**/discussions/forums/**(*forumId*)**/topics/**(*topicId*)**/posts/**

Retrieve all posts in a discussion forum topic.

Parameters:

- **version** (D2LVERSION) – API version.
- **orgUnitId** (D2LID) – Org unit ID.
- **forumId** (D2LID) – Forum ID.
- **topicId** (D2LID) – Topic ID

Query Parameters:

- **pageSize** (*integer*) – Optional. Number of topics (maximum) to return in each data page (default, maximum value is
- **pageNumber** (*integer*) – Optional. Ordinal number for the data page to fetch (default value is *1*).
- **threadsOnly** (*boolean*) – Optional. When true, the service will only return threads (default value is *false*).
- **threadId** (*number:D2LID*) – Optional. If present and true, the service returns only posts in this thread; otherwi multiple threads.
- **sort** (*string*) – Optional. Sort by creationdate, rating, votes, upvotes, or threaded (see description).

Oauth2 Scopes: *discussions:posts:read*

Status Codes:

- 200 OK – Action succeeded.

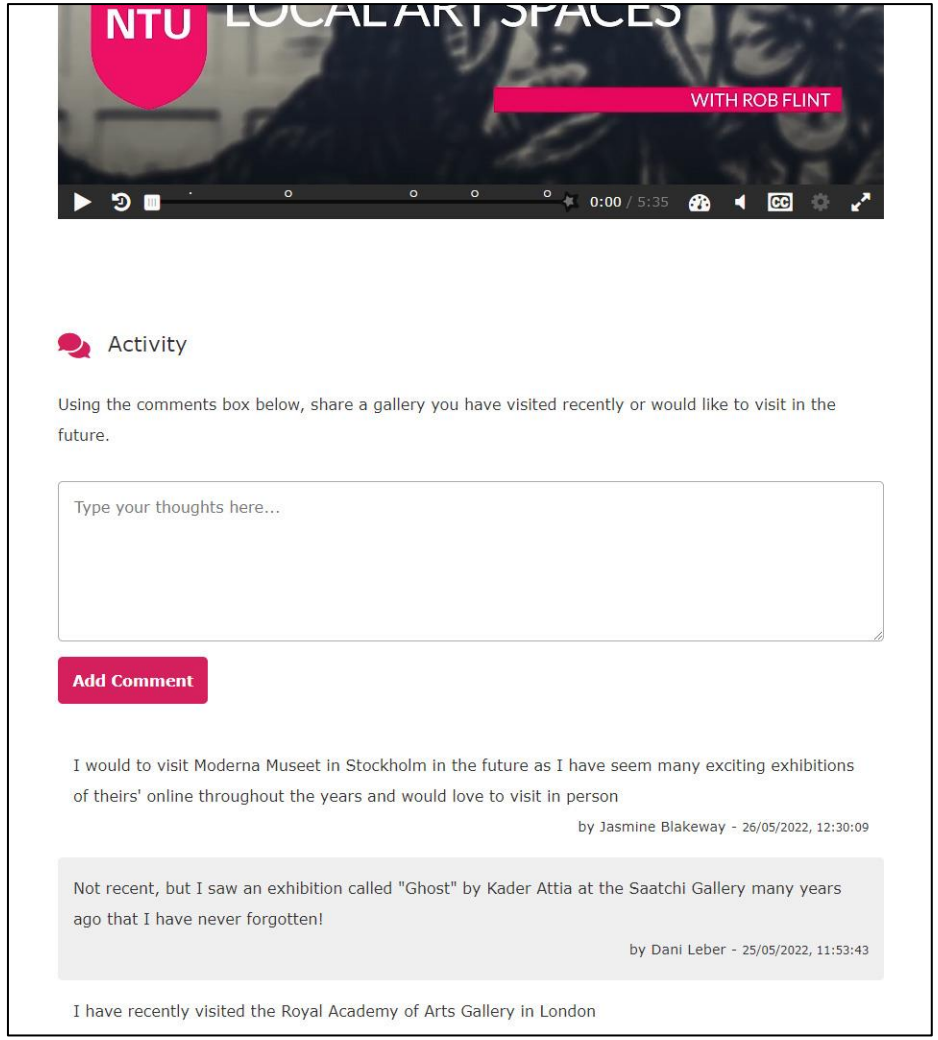
Day 55…

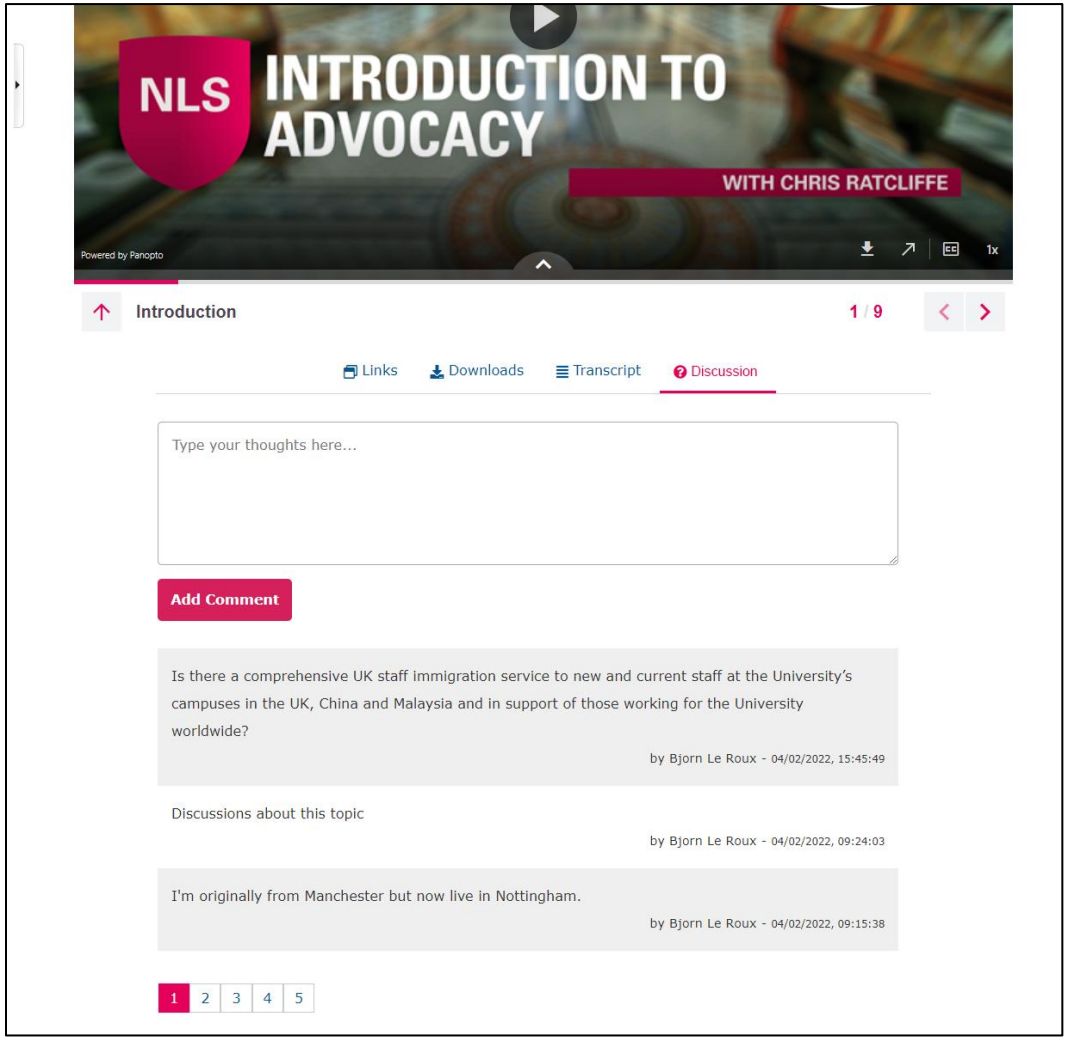
- How much access do we have to **discussions**?

```
{
    "ForumId": <number:D2LID>,
    "PostId": <number:D2LID>,
    "TopicId": <number:D2LID>,
    "PostingUserId": <number:D2LID>|null,
    "PostingUserDisplayName": <string>,
    "ThreadId": <number:D2LID>,
    "ParentPostId": <number:D2LID>|null,
    "Message": { <composite:RichText> },
    "Subject": <string>,
    "DatePosted": <string:UTCDateTime>,
    "IsAnonymous": <boolean>,
    "RequiresApproval": <boolean>,
    "IsDeleted": <boolean>,
    "LastEditedDate": <string:UTCDateTime>|null,
    "LastEditedBy": <number:D2LID>|null,
    "CanRate": <boolean>,
    "ReplyPostIds": [ <number:D2LID>, ... ],
    "WordCount": <number:D2LID>,
    "AttachmentCount": <number:D2LID>
}
```

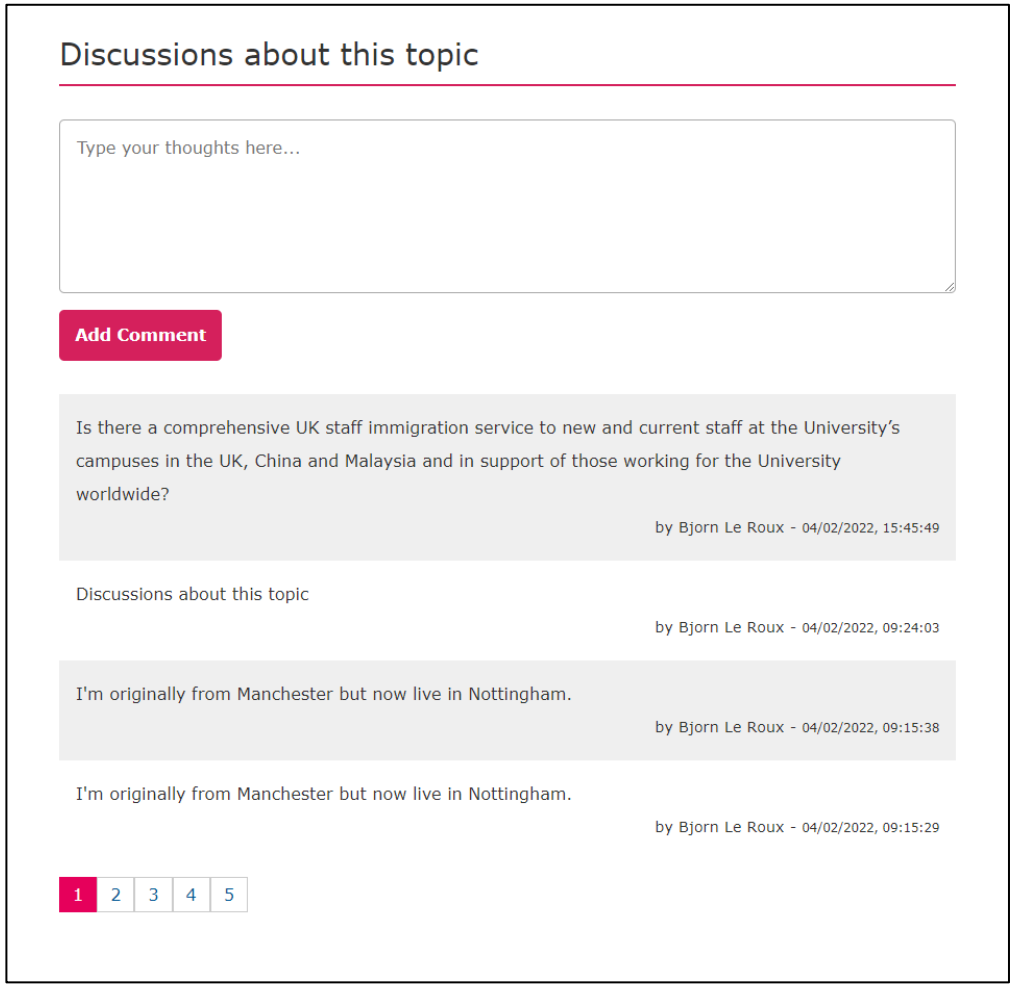
Discussions.**Post**

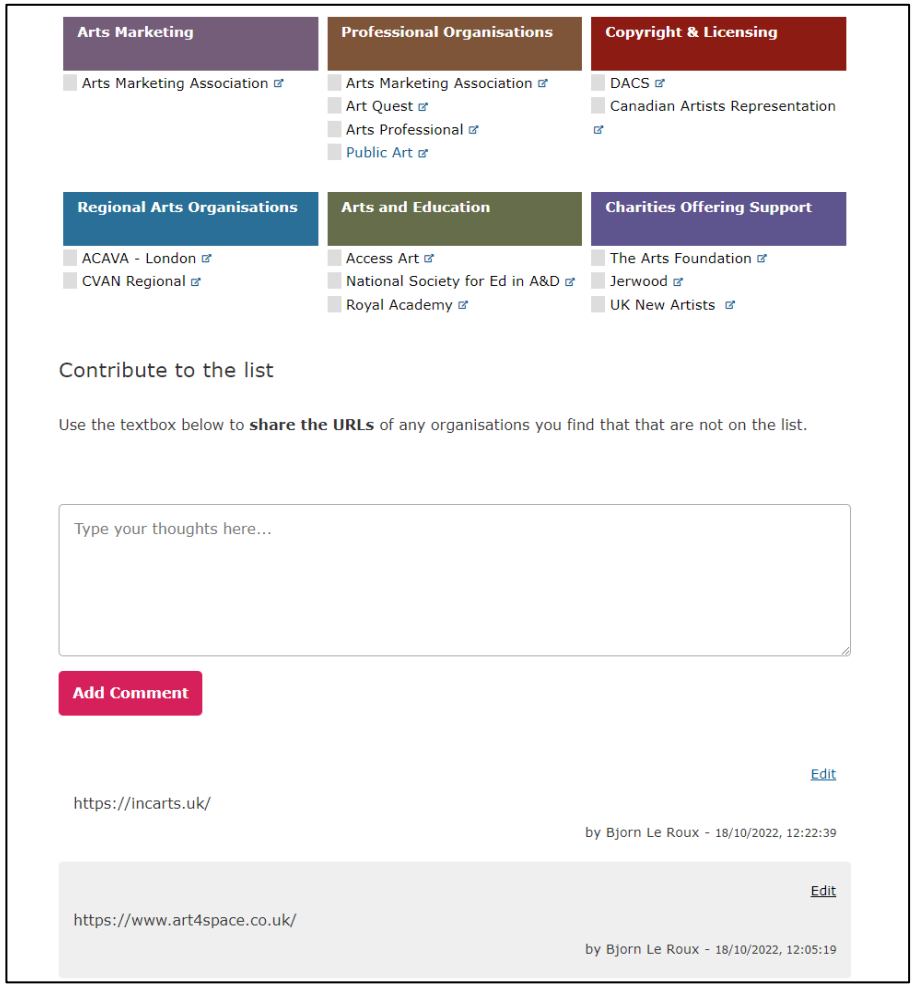
2. On-page Discussions Examples





2. On-page Discussions Examples





3. Visualisation of Awards

- More granular ways of visualising progress
- Promote the idea of gamification
- Additional method to track progress

Day 107…

- Could we build a custom **Awards dashboard**?

GET /d2l/api/bas/(*version*)**/issued/users/**(*userId*)**/**

Retrieve the awards issued to a user.

Parameters:
- **version** (D2LVERSION) – API version.
- **userId** (D2LID) – User ID.

Query Parameters:
- **orgUnitId** (D2LID) – Optional. Filter by the org unit.
- **awardType** (AWARD_T) – Optional. Filter by award type, defaults to all.
- **limit** (*number*) – Optional. Number of records to return between 1 and 200 (defaults to 100).
- **offset** (*number*) – Optional. Number of records to skip, defaults to 0.
- **includeExpired** (*boolean*) – Optional. If present and true, include expired awards in the results.
- **search** (*string*) – Optional. Filter results to those with matches between search string and org unit's name, or issued award's title or description.

Permissions: See Badges (Organization) or See Certificates (Organization)

Status Codes:
- 200 OK – Action succeeded.
- 400 Bad Request – Invalid filters.

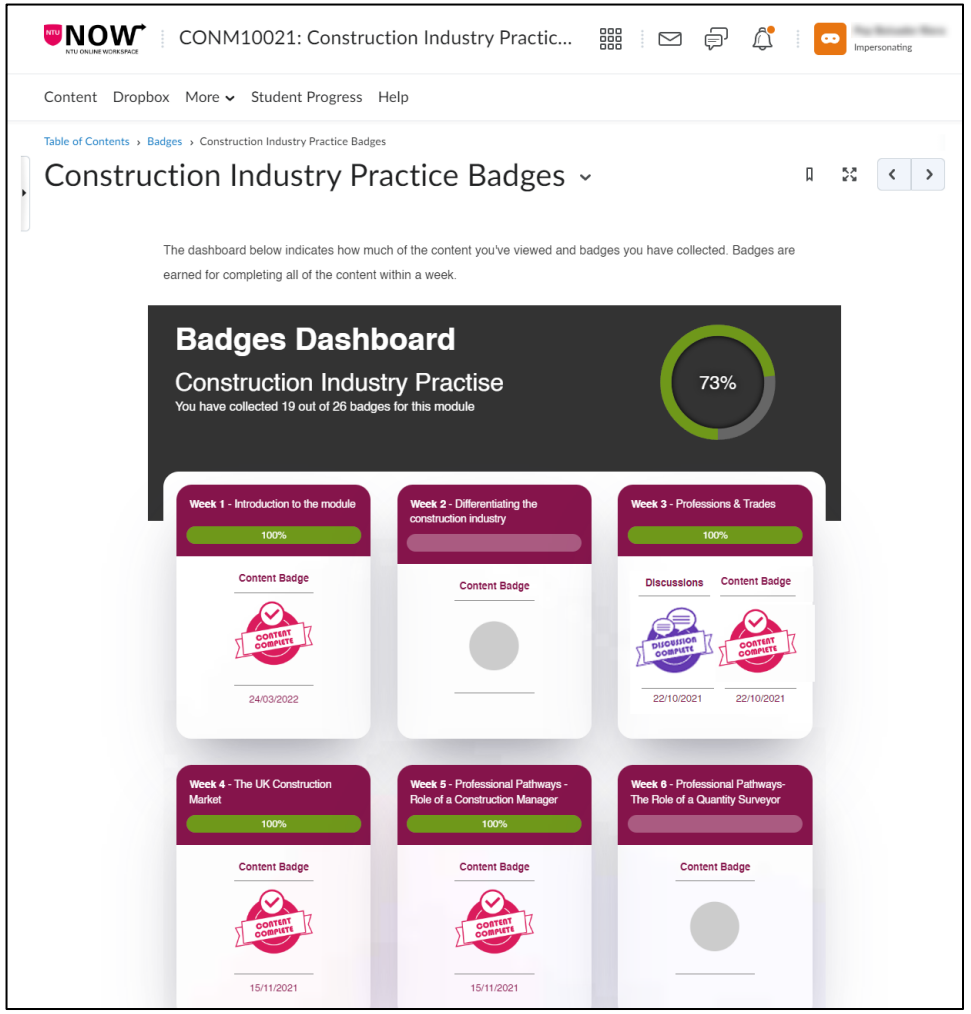
Day 107…

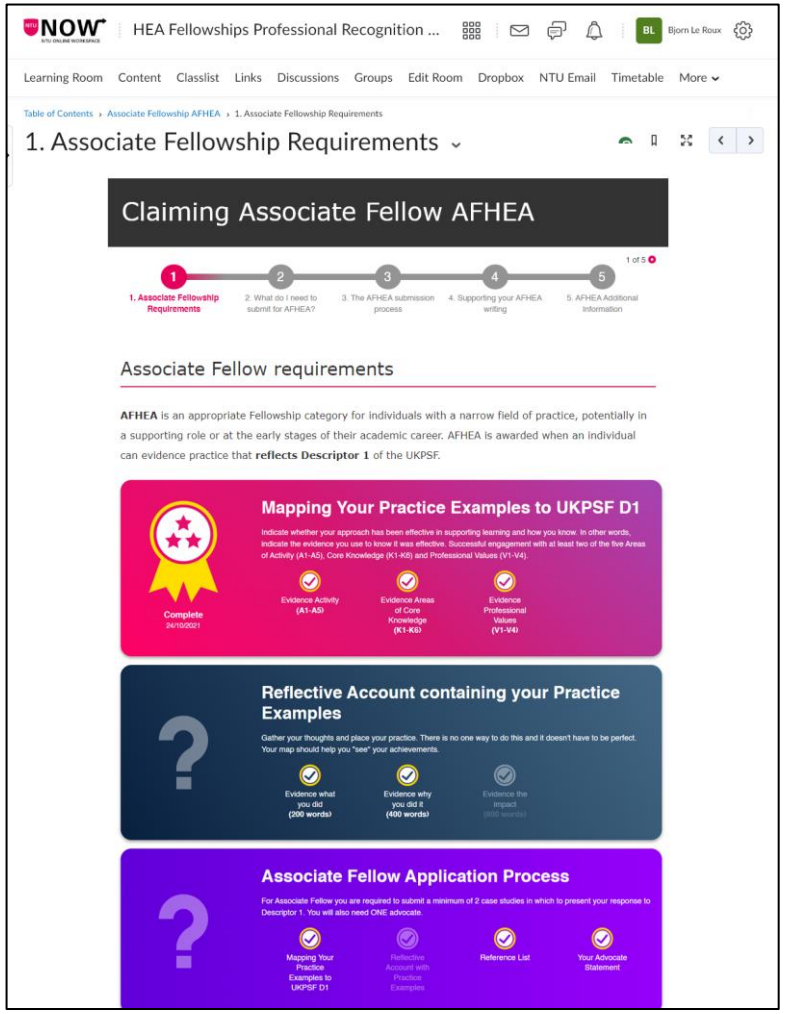
- Could we build a custom **Awards dashboard**?

```
{
    "AwardId": <number:D2LID>,
    "CreatedBy": <number:D2LID>,
    "Title": <string>,
    "Description": <string>,
    "ExpiryCalculation": { <composite:Awards.ExpiryCalculation> },
    "ExpiryNotification": { <composite:Awards.ExpiryNotification> },
    "IssuerName": <string>,
    "IssuerUrl": <string:URL>,
    "IssuerContact": <string>,
    "AwardType": <number:AWARD_T>,
    "CertificateData": { <composite:Awards.FileData> },
    "ImageData": { <composite:Awards.FileData> },
    "IsDeleted": <boolean>
}
```

`Awards.Award`

3. Award Dashboard Examples





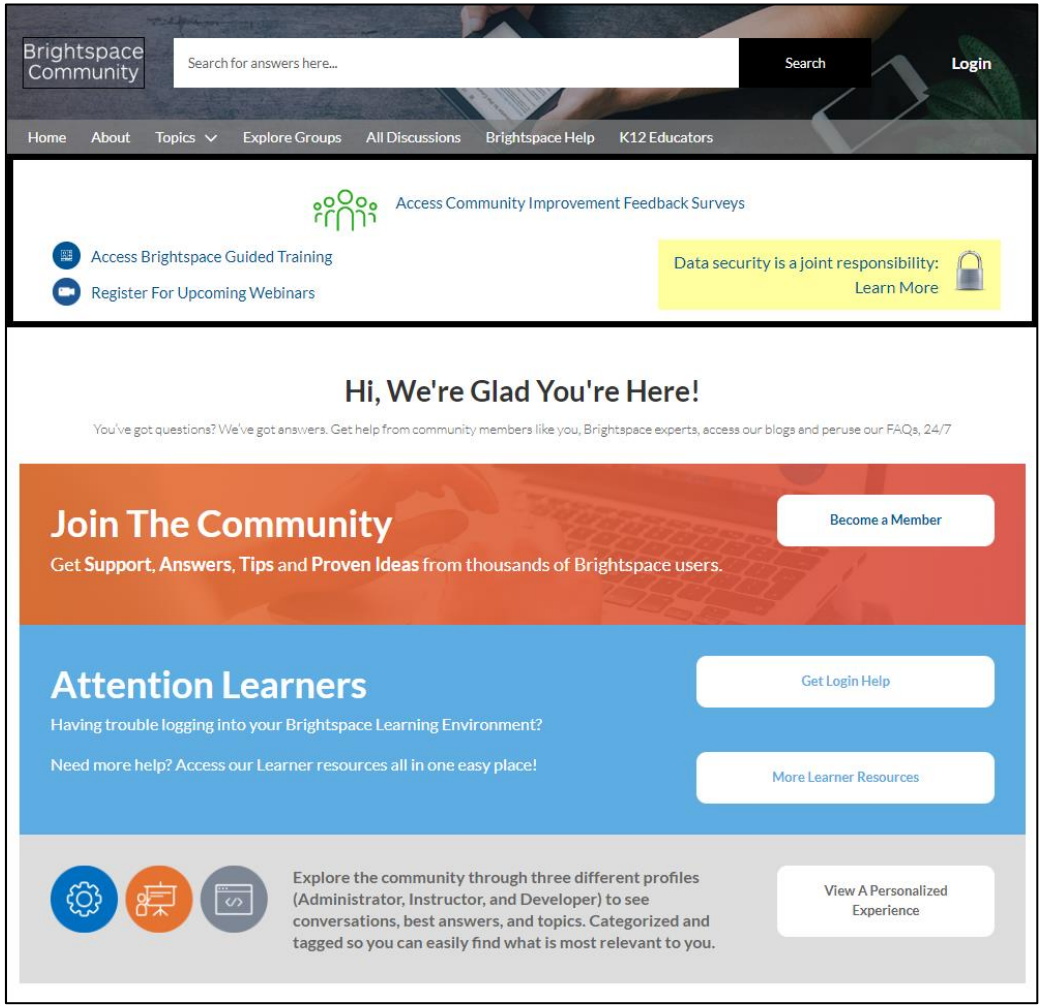
Our Limitations

- User Level Permissions – what can students do?
- No additional infrastructure
- **<iframe>** restrictions
- Our position – the role of the department

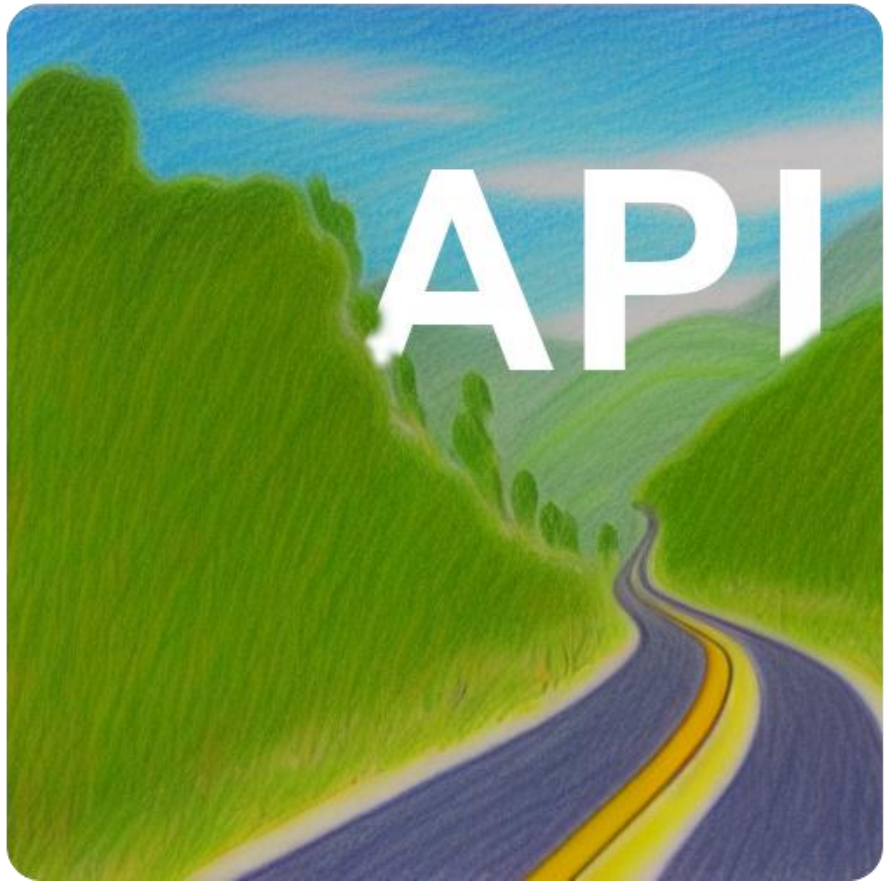
Brightspace Community

- Ask questions
- Feature suggestions
- Get ideas

community.brightspace.com



Thank you



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