Enhancing Student Understanding of Current Technology Methods by use of a Wiki

An Action Research Project investigating how a Wiki enhances student understanding of the courses undertaken at UAL's Creative Computing Institute

Matthew Jarvis 5/8/24

UAL: Creative Computing Institute (CCI)
Social Mission

A key part of its status as an institute within UAL is its social mission. This has 3 key related areas of work:

1. Digital Inclusion

We create opportunities for marginalised people to access creative technology.

2. Diversity in Technology

We are mindful of how the technology we develop impacts society.

3. Digital Entrepreneurship

We create entrepreneurship opportunities for marginalised people.

https://www.arts.ac.uk/creative-computing-institute

UAL: Creative Computing Institute (CCI)

Working at the intersection of creativity and computational technologies.

At UAL Creative Computing Institute you can learn new skills and develop knowledge in:

- Creativity and machine learning

- Human computer interaction

- Big data, social platforms and digital citizenship

- Computational environments, visualisation and sensing

- Creative coding and software development for the digital creative industries

https://www.arts.ac.uk/creative-computing-institute/courses

Background - About Matt Jarvis
Physical Computing Specialist Technician (Teaching & Learning)

- I work primaraly as a specialist technical that students can come to for Physical Computing support

- There are 8 courses running at CCI thoughout the year that incorporate Physical Computing which I support with a group of other specialist technicians who specialise in various fields such asDigital Fabrication, Multimedia and Robotics

- I also lead (as an AL) the Pysical computing classes for the MSc in Creative Computing at the Creative Computing institute at UAL, based between Peckham Road and Green Coat buildings

- I have a unique insight into the sucess of supporting technically and formally educating students in Computer Science fields

Rationale

Why choose the wiki? Well it reflects what I do for a job..

- It's basically the way I built my teahcing and technician practice at UAL

- When I started, I observed, reflected, planned and acted on how the courses run. "This is not normal technician behavior" - Technical Manager

- The CCI wiki is inherently an action research project in itself; we observe issues, reflect and problem solve, come up with a solution and document or refine it, over and over.

What is a wiki?

It's a knowledge dump using text-based media and rich content

- A wiki is a website that allows users to create, edit, and share content in any type of organised way.

- The term comes from an Hawaiian word 'wiki-wiki', which means 'fast'. (Specifically named after the wiki-wiki bus at Honolulu International Airport by Ward Cunningham who set up the first wiki in 1995)

- Wikis are flexible and asynchronous, meaning they can be used at different times by multiple users.

- They are well suited for collaborative authoring and can be used for a variety of purposes such as create shared class resources, such as when a lecturer asks students to share pop culture references to the intracies of how a micro processor works.
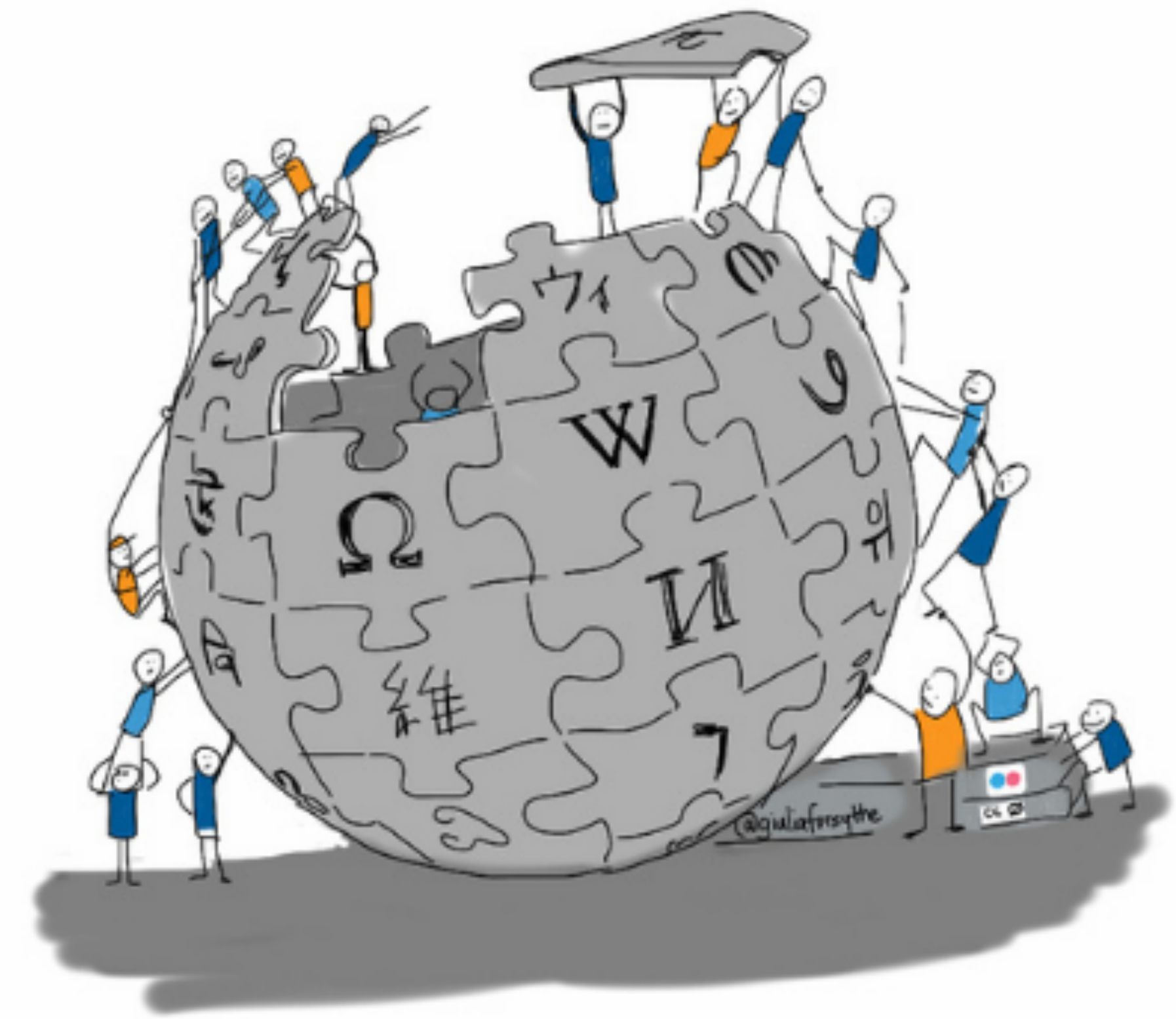
What is a wiki?

It's a knowledge dump using text-based media and rich content

- In their 2001 book The Wiki Way: Quick Collaboration on the Web, Cunningham and co-author Bo Leuf described the essence of the wiki concept:

  - "A wiki invites all users—not just experts—to edit any page or to create new pages within the wiki website, using only a standard 'plain-vanilla' Web browser without any extra add-ons."

  - "Wiki promotes meaningful topic associations between different pages by making page link creation intuitively easy and showing whether an intended target page exists or not."

  - "A wiki is not a carefully crafted site created by experts and professional writers and designed for casual visitors. Instead, it seeks to involve the typical visitor/user in an ongoing process of creation and collaboration that constantly changes the website landscape."
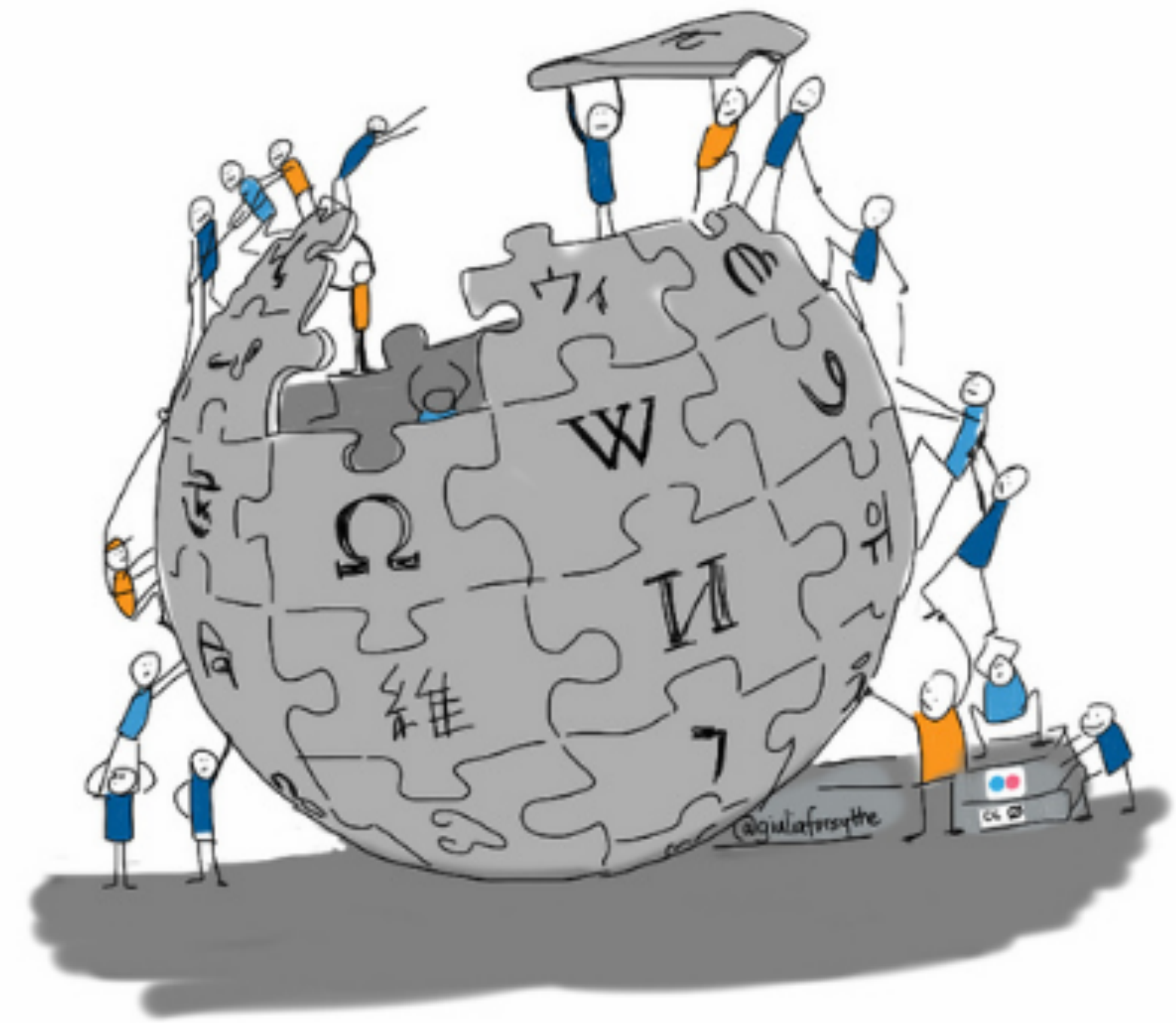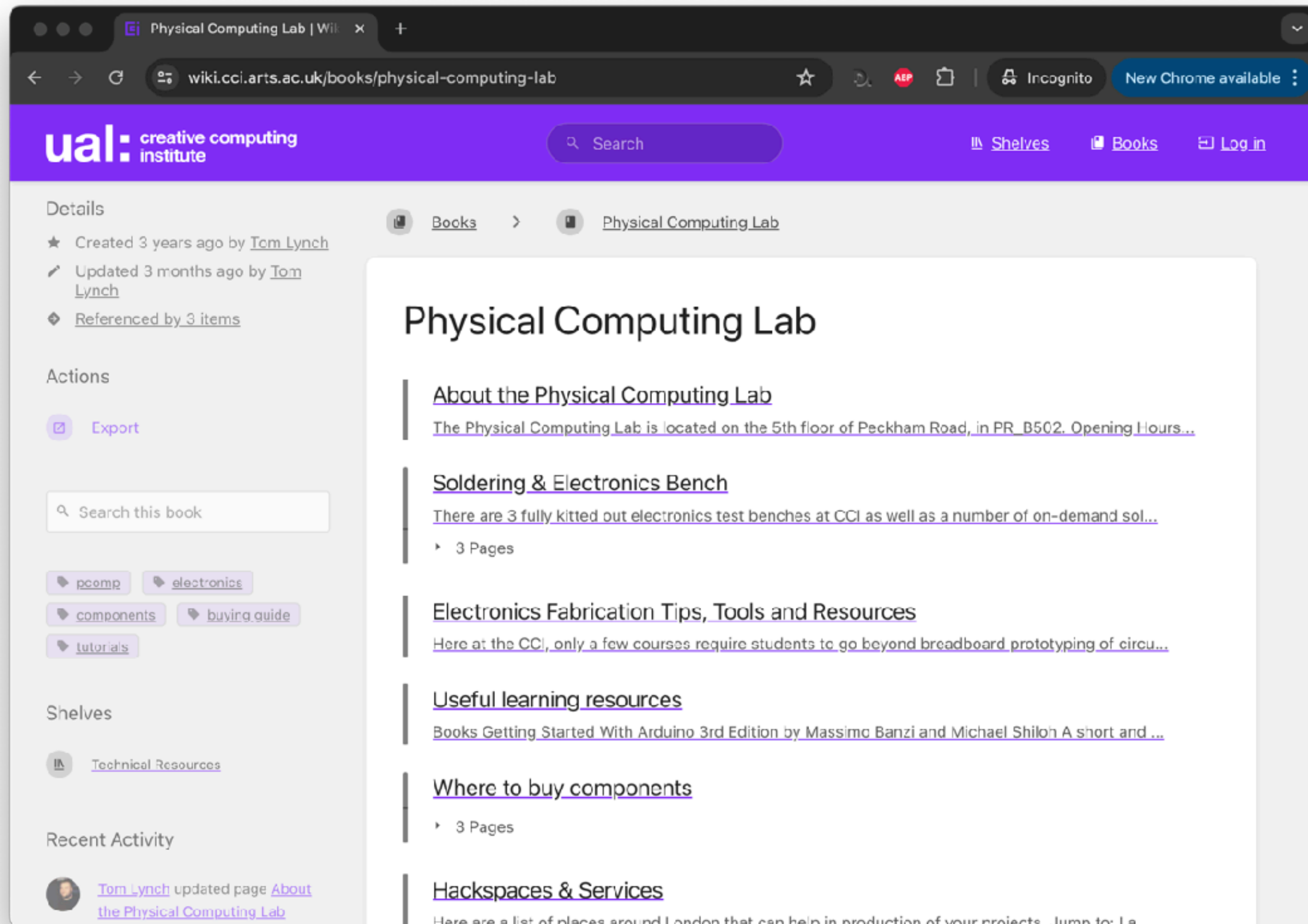

Image Credit: 'Wikipedia', Giulia Forsythe via Flickr,

https://en.wikipedia.org/wiki/Wiki

CCI's Wiki as we currently use it
Technical skills and knowledge exchange tools

- Publically available to anyone world wide

- Mainly covers how-to articles about physical computing but is expanding into other fields

- Lists how CCI systems work

- Is heavily text-based

- Mainly updated by the technicans, not students

- Ad-hoc updates are made as-and-when with no structural formal reviews (not in anyone's contract, is totally voluntary)

https://wiki.cci.arts.ac.uk/

Methodology
Semi-structured interviews

My action research project sought to explore how the wiki can enhance student understanding of current technology methods.

The focus was on looking at our curreltly running wiki's content, usability, and accessibility based on feedback from academic and management staff.

The goal was to determine if this is a valuable educational resource and if it supports diverse learning needs, and also if it helps inclusivity aligning with UAL's Social Justice goals.

I wanted to know how it's being used, and how academics and technicians saw the resource and if it was useful to their roles too, so I devised a set of intricate questions based on several areas to interview CCI staff with…
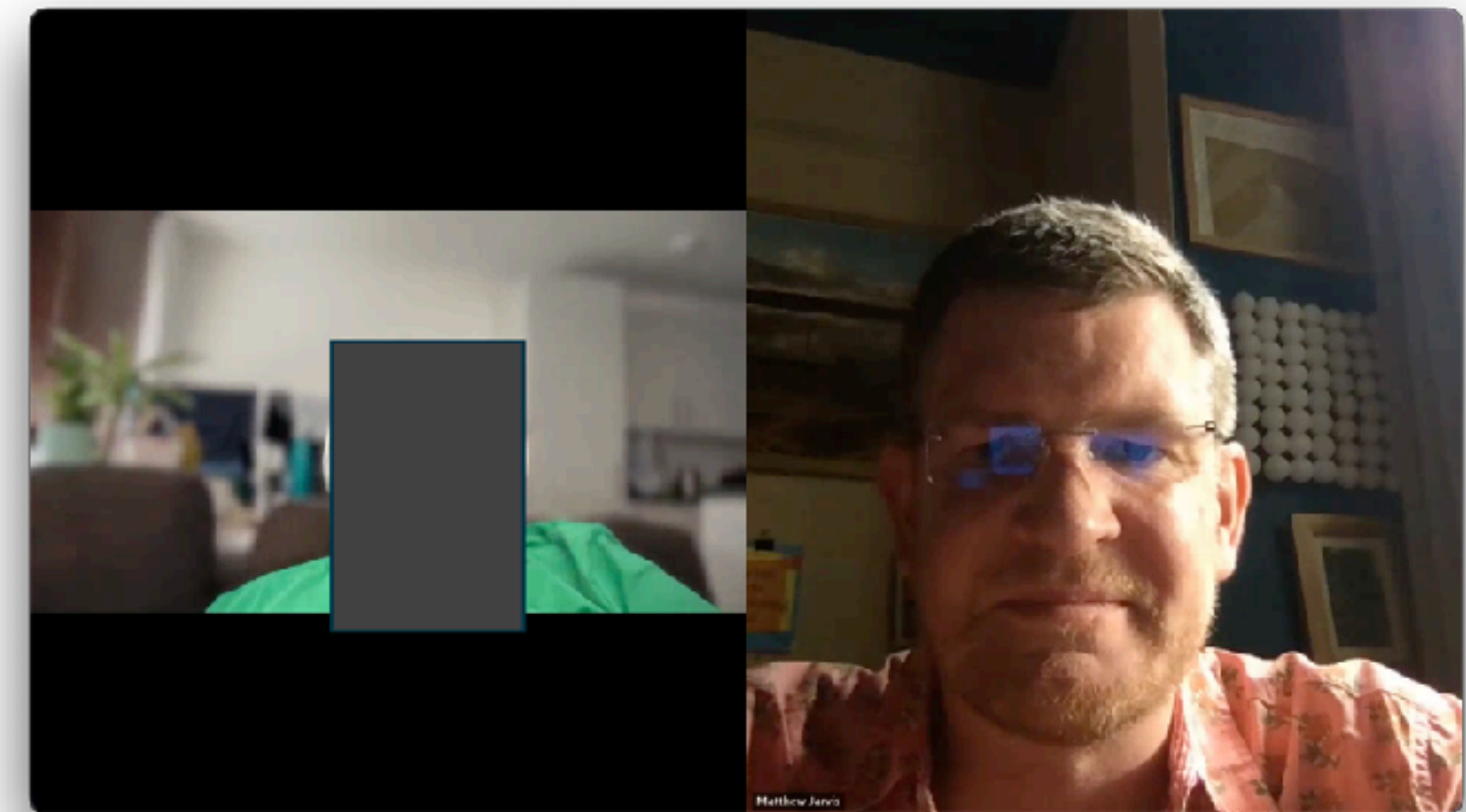
Methodology
Semi-structured interviews

I collected my data from stuctured intervews with academics and management at CCI. The questions were categroised to help me structure a larger conversation around the wiki and it's use into the folloowing broad sections:

- Current Usage and Content;

- Improvements and Features;

- Academic Support and Collaboration;

- Technical and Pedagogical Support;

- Alignment with ARP Objectives;

I then transcribed and reflected on each interview with my thoughts and from my dualistic position in the CCI

https://mattjarvisresearch.myblog.arts.ac.uk/2024/08/06/questions-used-to-interview-cci-staff-members-about-the-use-of-the-wiki/

Data
For each question I annoymised the data and reflected upon the response

Question	Participant 1	Reflections from participant 1 (P1)	Participant 2	Reflections from participant 2
How often do you update or reference the wiki in your interactions/lessons?	Frankly maybe once at freshers week, but then never then again, however the PComp tutors will refer to it often in class.	P1 doesn't realise the content on the wiki is a general overview of everything that we have realised students need to know. It has building locations, contacts, sturucture of CCI, and much much more that they can also contribute to. They see the wiki purely as a tech resource and not a support for their teaching.	I think for the bits I'm looking after like what resources do you have access to like or what the new students need? We put the list of kit for new students on there like that gets updated a couple of times a year perhaps. Mostly it's caused by someone like the programme admin theme saying we're going to send this e-mail out or the team saying we're doing an event next week and we want to be able to answer this question. And so I just go and check it and update. I mean, as pages have gotten older, they become less difficult to update because. There's less to say. I suppose that's changed. And in terms of referencing like probably everyday? I will be pointing. I mean people ask the same questions all the time. So like if not every day at some all the time, it's definitely multiple times a week.	Resorces are very well covered on the wiki and even link to a live updated status of what's avilable and in use when on campus. The tech team don't always get time to write the wiki resources, and when they do, they start vague and become more intrcate as more students ask about the resources, so some things maybe only get updated a couple of times a year, though as P2 says, it's easier the older the article is to refresh it.
My comments on this section		**The wiki doesn't seem that relivent to P1's daily work, saw it as a technical reference for Physical Computing only, yet sees the potential for the wiki to be more clearly designed and that there is a lot of**		**The tech tram needs some encouragment and support from one another to update the wiki more frequently.**

Results
Wiki's have a future can could be useful in other areas of UAL

- Acaedmic staff are mostly aware of the wiki but don't always remember to inform students about it.

- Overall the content of the wiki is useful for students and staff starting at CCI, and continues to be until somehow it's forgotten about throughout the academic year, until studesnts start their projects, stuedents arrange a technical tutorial, or they reach out on the #technical channel on Slack (our main communication platform).

- There are issues reguarding the design and information display of the data in the wiki that include layout and the feeling of being overwhelved, which may put students off using it as a resource

- Technicains work on dopamine highs, and usually have a queue of students to help solve problems with, making time and energy an issue for keeping the wiki articles up to date

- There is a need for accademic staff to find the basic cross-over of course content and agree a way for it to be documented, some academic staff like to re-invent the wheel each time to say/teach the same thing

- Technicians are great at signposting students to the pages that are created as needed for projects, and create new pages for frequently asked questions in tutorials, yet they need encouragement and support to do so

Refelections

What can improve student learning using the wiki?

- The main thing we need to agree on as a team is how we will use the wiki going forward, so I will suggest the possibility of workshops led by the tech team to inform academics how to use the wiki for their own teraching support. This includes look at the language used on it, should it be 'maker-based' language?

- Ensuring everyone knows it's the single point of truth for the technical support at CCI

- Better integration with course content (getting academics to find overlaps): Academics working together to keep wiki articles fresh and relevant would benefit everyone, especially as a teaching aid across Physical Computing projects.

- Technicians need to work with their team to arrange more time for the updating of the wiki. I suggest we have a monthly 'wiki-time' meeting as the tech team and see how we can help eachother flesh out some content that is missing or update what's there together.

- A staff training day/afternoon or even a hack-a-thon would bring the wiki to the forground of all staff with student contact

- Social justice: ask if students would be willing to share projects on articles that have already been made that relate to social, climate or racial justice issues

https://mattjarvisresearch.myblog.arts.ac.uk/2024/08/06/project-findings/

Future Research
Wiki's have a future and could be useful in other areas of UAL

- Upgrading the back-end editor to allow for easier content creation, the current system doesn't have a user-friendly interface

- Undertake some research into possible improvements to integrate wiki in other ways, such as with macihne learning algorythms connected to the #technical Slack channel to bot like a bot

- Better design methodology, thinking though the pathways both students and staff arrive at the wiki - with a concept of it being the 'north star' of feeling part of the CCI

- Provide videos along side text (to WC3 standards), although this has it's own issues (time, resources etc)

- Hack days with academics and the tech team to mash & bash out ideas about how the wiki could be more intergrated into course content and technical support

- Do a further detailed imperical study usuing semi structured interviews with students to investigate what might be possible for better engagement

- A repeat of this study every number of years

References

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