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Breaking Barriers with Building Blocks: Attitudes towards Learning Technologies and Curriculum Design in the ABC Curriculum Design Workshop

Kristy Evers
UCL Institute of Education

Abstract

This paper investigates the efficacy of the ABC Curriculum Design workshop that was developed by the UCL Digital Education Team. The workshop was created in response to a wider critique in the HE community on quality of curriculum design and was meant to help realise the university's strategic initiatives on promoting blended learning. Acknowledging lecturers' limited time, the Digital Education Team designed a quick 90-minute teamwork activity to help educators design engaging learning activities. Running for almost two years, the workshop is widely acclaimed and has been organised in different universities around the world. However, no study into the impact of the workshop has been conducted yet. This study aimed to start answering this question on the impact of the workshop. It particularly looked at the participants' attitudes towards curriculum design and learning technologies before and immediately after the workshop. These are two of the main points the workshop and the underlying institutional strategies are trying to target and attitudes are often a precursor for future behaviour. Two qualitative case studies were carried out, involving interviews and focus groups with a total of 8 workshop participants. The interview and focus group transcripts were analysed through a thematic analysis in N-Vivo. The research found that the participants were overall very positive about the workshop, particularly about the (learner) framework, collaboration opportunities, reflection opportunities, interactive format of the workshop and the possibility to include student input in the design process. The workshop likely changed participants' attitudes around curriculum design.

1. Introduction

The ABC Curriculum Design Workshop was developed in 2014 by UCL's digital advisory team, whose role it is to promote blended learning and digital technology across the university (Young and Perović 2016). It is an engaging 90-minute card-based approach to curriculum design (Young and Perović 2016; Young and Perović, n.d.). The main aim of the workshop is for participants to design engaging learning activities for their programmes. Usually, participants work together in teams, based on the programmes they are looking to design. Together, they have to create a 'storyboard' that shows the type and sequence of learning activities and the type of assessments they want to employ in order to reach their module's learning outcomes.

At this stage, the interactive and hands-on workshop has been trialled with great success over a variety of programmes and even across a variety of universities and countries (Perovic 2016). While it was developed with specific UCL strategic initiatives in mind, namely UCL Arena, Blended Learning and Connected Curriculum, the workshop has proven to be very adaptive to other settings.

While the workshop has had positive responses from participants, no research has been conducted into the impact of the workshop yet. In order to address this gap and to help create more understanding of and find ways to improve the workshop, this research project, broadly speaking, looks at the effectiveness of the workshop. Specifically, this research focuses on the participants' attitudes towards curriculum design and learning technologies before and directly after the workshop, to see if there are any changes. It also looks at the participants' experiences in general to advise on how the workshop could be improved.

This research addresses these points by taking a qualitative case study approach. Participants from two workshop groups were interviewed before and after their workshop session, with the post-workshop interview being a focus group. Additionally, all participants filled in a survey about their backgrounds in education and with technology.

This paper presents a brief review of the literature, focusing on the pedagogy behind the workshop and how it aims to help participants with curriculum design and inspire them to use more learning technologies. Subsequently, the research design and methodology are described and the findings and preliminary conclusions presented and addressed across the two case studies.

2. Workshop format

As visualised in Figure 1, the workshop is organised in the following way (Young and Perović 2016; Young and Perović 2015-2016): The workshop organisers start by introducing the different elements and background of the workshop, running through the theory and tasks of the workshop. Then the participants start their first task, which is creating a 'tweet' that summarises the outcome or main selling points of the module in order to get all team members on the same page. They then have to draw the shape of their programme by indicating in a spider diagram the amount of learning types they expect their course to have. For the main part of the workshop, the participants then work on sequencing the learning types on the module's timeline or storyboard, represented on an A1 paper (see Figure 2). After they have agreed on the result, they turn over the cards and choose activities corresponding to the learning type on the card from a list of online and conventional activities (see Figure 2). Participants can also add their own activities.

Next, the participants decide on where they want to apply formative and summative assessment methods. These are indicated by gold and silver stars. Finally, the participants go back to the initial spider diagram they made and draw another one, after having

thought about the learning types in their design during the workshop. If the session has multiple modules across a department or programme, the participants can also walk around and look at each other's storyboards, learning about and discussing each other's plans in relation to their own. At the end of the workshop, participants will go home with a visual 'storyboard' containing the type and sequence of learning activities required to meet their course's learning outcomes and will have had an opportunity to discuss their plans with colleagues and workshop organisers. This framework will help them in the rest of their module planning.

Figure 1: Flow Chart of Workshop Activities

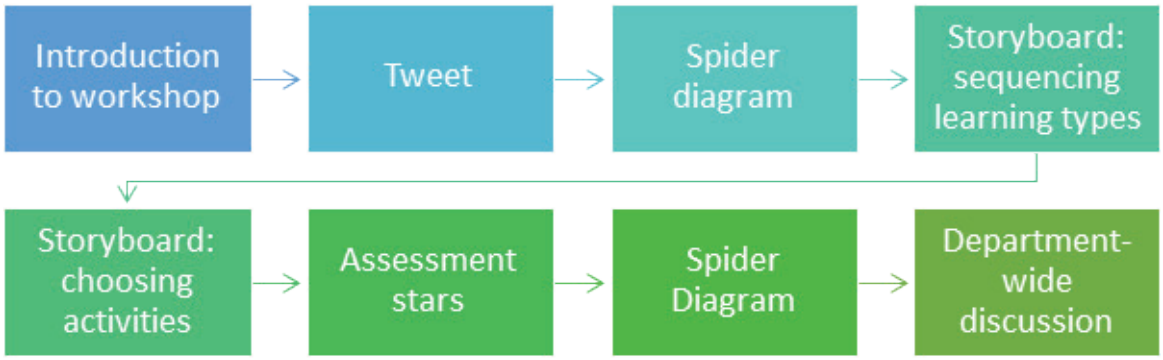
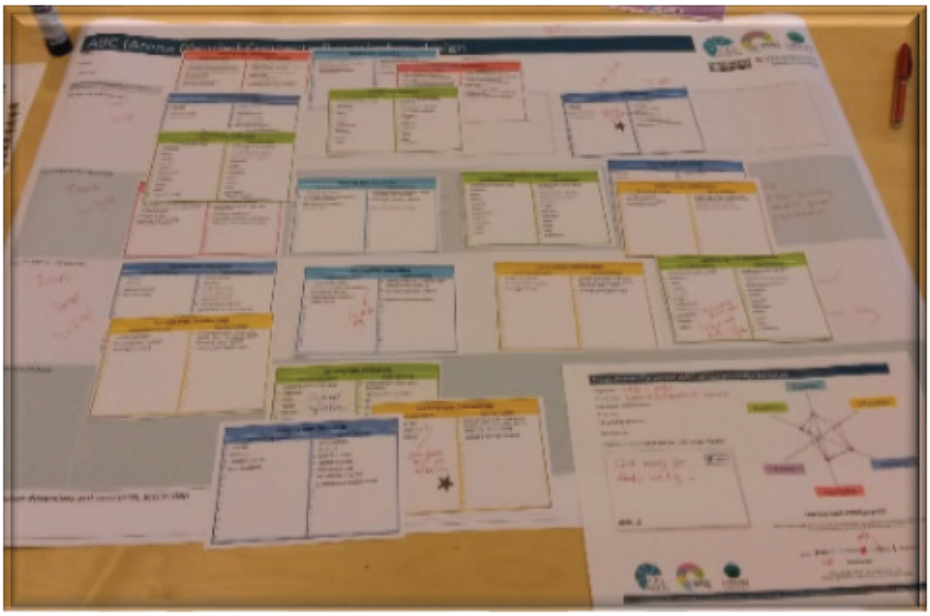


Figure 2: Example of Finished Storyboard with Cards



3. Literature Review

3.1. Attitudes towards Curriculum Design (CD)

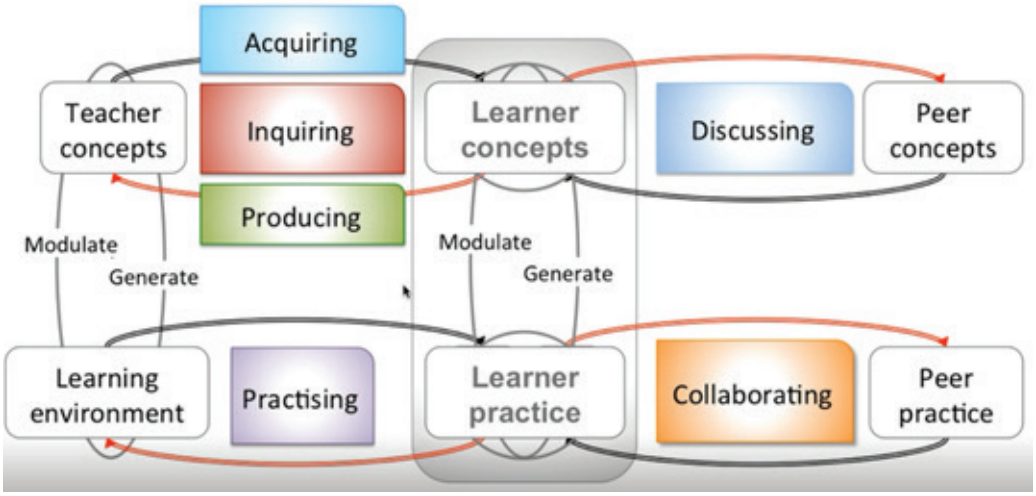
Coming from the need to provide help to teachers to design or redesign their blended or online programmes, the ABC workshop was a response to a wider critique on the quality of curriculum design in HE (Nicol 2012; Beetham 2012; Young and Perović 2016). The workshop organisers realised that something needed to be done to improve the design process, but were also wary of existing methods that take up a lot of time as they realised that lecturers do not have a lot of time to spend on their curriculum design (Young and Perović 2016). As they explain, "for a process to be adopted at UCL it would have to show time efficiency for curriculum teams and other stakeholders" (Young and Perović 2016, p. 391). Their research focused on gathering the best of existing approaches and structuring it into an appropriate format. The workshop's developers ended up using two development projects in particular, JISC and the University of Ulser's Viewpoints project (JISC 2012; University of Ulster 2012) as well as Diana Laurillard's research on learning types at UCL's IOE (Laurillard 2012; Laurillard 2013-2016).

From the first project, they drew on the idea of using a storyboarding approach, which included a large course 'canvas' and a set of cards to be selected, sequenced and annotated. As the project was positively reviewed in terms of helping to identify curriculum design challenges, its focus on education rather than content and its focus on the learner rather than the teacher (Nicol 2012), the ABC team decided to use a similar approach (Young and Perović 2016). This focus on 'education' and the 'learner' comes from the field of Learning Design, which is a model of education that "is based on the concept of a standardized "language" or framework to describe educational activities" (Dalziel 2008). According to Dalziel, it particularly focuses on group work over individual work over a structured series of activities (2008). Learning Design is defined by Koper as "the description of the teaching-learning process

that takes places in a unit of learning (e.g. a course, a lesson or any other designed learning event)" and its key principle is that "it represents the learning activities and the support activities that are performed by different persons (learners, teachers) in the context of a unit of learning" (Koper 2006, p. 13).

The organisers based the content of the cards on the six learning types identified by Diana Laurillard as part of her Conversational Framework, which is developed to represent and analyse formal learning environments and meant to challenge the use of new technologies in learning (Laurillard 2012). The framework's aim is to "represent, as simply as possible, the different kinds of roles played by teachers and learners in terms of the requirements derived from conceptual learning, experiential learning, social constructivism, constructionism, and collaborative learning, and the corresponding principles for designing teaching and learning activities in the constructional design literature" (Laurillard 2012, p. 93).

Figure 3: Laurillard's Conversational Framework, including the 6 learning types (Image taken from lecture video (Laurillard 2016))



As illustrated in Figure 3, Laurillard identified six different learning types that correspond to the different communication cycles of her framework. The ABC card set is based on these learning types, consisting out of six cards, one for each learning type: acquisition, inquiry, practice, production, discussion and collaboration (Figure 4). Acquisition involves learning through reading or listening. Inquiry or investigation involves students exploring and questioning resources. Practice involves students using their skills for a task and improving them based on the feedback. Production involves students using their knowledge in practice by creating something. Discussion involves students responding to and challenging each other. Lastly, collaboration involves a combination of discussion, practice and production, working together to practice new skills and creating collaborative work by challenging each other and reaching agreement.

Following this theoretical background, one can theorise that the ABC curriculum design workshop is experienced by participants as helpful in elucidating and providing a structure for the design process (through the storyboarding approach) and focusing on pedagogy and the learner (through the focus on learning types) rather than the content or the teacher. These are therefore two points that are addressed in this research.

Figure 4: The front of the ABC cards, explaining the 6 learning types

3.2 Attitudes towards Learning Technologies

As the workshop is meant for blended courses, one of its aims is to promote the use of learning technologies among the participants, which it does implicitly in several ways. At no point during the workshop, however, do the organisers prescribe any kind of technology or do they suggest how to use learning technologies. They do give them the option to choose between conventional and digital activities on the back of the cards. The organisers hope that giving participants these options will stimulate them to reflect on their choices and consider what activities would work best in their overall curriculum and for their students. The use of learning technologies is thus encouraged implicitly through the design but not through the delivery.

Moreover, as the ABC Curriculum Design Workshop has a learner-centred theoretical background at its core, it is important to note the observed positive link between learner-centred attitudes of teachers and their use of technology in the classroom (Becker 2000; Niederhauser and Stoddart 2001; Norum, et al. 1999; Bai and Ertmer 2008). Several studies showed that teachers who held learner-centred beliefs were more likely to use technology frequently and to engage with technology-supported student-centred learning activities. Teachers with more traditional teacher-centred beliefs, however, were less likely to use technology and, when they did, it was mostly used to reinforce skills. Thus, using a learner-centred framework in its design is another contributing factor to how the ABC Curriculum Design Workshop could stimulate participants to use more learning technologies.

Consequently, the workshop's approach ideally would give participants more positive attitudes towards the use of learning technologies, overcoming existing ideological barriers to actually use the technologies in their teaching (Bai and Ertmer 2008; Ertmer 1999; Ritchie and Wiburg 1994). As Bai and Ertmer explain, "attitudes towards technology are expected to predict one's uses of technology" (Bai and Ertmer 2008, p. 108), because "attitudes and beliefs are a subset or a group of constructs that name, define, and describe the structure and content of mental states that are thought to drive a person's actions" (Richardson 2003, p. 102). When teachers are positive towards learning technologies, they are more likely to use them and vice versa. Thus, looking at the participants' attitudes towards learning technologies in this study is worthwhile as it could be considered an indication of their future technology use and, by extension, the successfulness of one of the workshop's aims.

When it comes to the implementation of technology into education, Ertmer argues that there are two types of barriers to technology integration, 'first-order barriers' and 'second-order barriers' (Ertmer 1999). The first are barriers extrinsic to the teacher and include, for example, lack of access to hardware and software, lack of time and lack of administrative or leadership support. The second are intrinsic to the teacher and include, for example, their beliefs and practices. Ertmer explained that as second-order barriers are personal and generally ingrained in individuals, this barrier is harder to overcome. Thus, "achieving technology integration is a multifaceted challenge that entails more than simply acquiring and distributing computers" (Ertmer 1999, p. 53).

Following Ertmer's classification of barriers, the ABC Curriculum Design Workshop addresses both types. It addresses first-order barriers by providing support and promoting institutional strategies in the form of expertise and tools for teachers to design their curriculum. Moreover, the workshop addresses the more complex second-order barrier by providing a space for reflection and collaboration. In her article, Ertmer explains 3 ways to overcome second-order barriers. These are modelling good practice, reflection on their own practice and collaboration with peers. These processes are mainly supported by professional development activities, which have been identified in many studies as a way to help shape teachers' beliefs (Cifuentes 1997; Daniel 1996; Hart 2002; Gibbons and Norman 1987), and are also supported in the ABC Curriculum Design Workshop.

4. Research Design

4.1 Research Questions

Addressing the implicit goals of the workshop around blended learning and learner-centred theoretical approaches, which are driven by institutional strategies, it is important to analyse how the workshop potentially changes or shapes (institutional) attitudes. The overall research question of this project is:

> *How did the participants' attitudes towards learning technologies and curriculum design change during the ABC Curriculum Design Workshop?*

To break down this question to more workable parts, several sub questions were created:

Figure 5: Research Questions Overview

Research Questions

Attitudes towards Learning Technologies

- RQ1: What are the participants' attitudes towards pedagogical uses of technology before the ABC Curriculum Design Workshop?
- RQ2: What are the participants' attitudes towards pedagogical uses of technology shortly after the ABC Curriculum Design Workshop? And what are the links between these attitudes and the different parts of the workshops?

Attitudes towards Curriculum Design

- RQ3: What are the participants' attitudes towards curriculum design before the ABC Curriculum Design Workshop?

- RQ4: What are the participants' attitudes towards curriculum design shortly after the ABC Curriculum Design Workshop? And what are the links between these attitudes and the different parts of the workshops?

Experience of the Workshop

- RQ5: How did the participants experience the workshop? How can their experience be improved?

4.2. Methodology

While 'attitudes' can be measured both quantitatively as well as qualitatively, qualitative research is deemed most suitable for this project as qualitative research allows for in-depth analysis of a phenomenon. The methodology used is a case study approach. This research project used interviews and focus groups to obtain data, after which both case descriptions and case-based themes were created to provide the reader with rich, thick descriptions of the cases and the overarching themes. Participants also filled in a short survey to gather some background data. The interviews were used to address the first and third research question, focusing on attitudes towards learning technologies and curriculum design before the workshop. Focus groups were used for the other questions, focusing on the attitudes towards learning technologies and curriculum design after the workshop, their links to the workshop and overall experience of the workshop. Both interviews and focus groups were run through semi-structured interview guides. This project followed BERA's ethical guidelines (BERA 2011) and was reviewed and approved by the UCL IOE Research Ethics Committee.

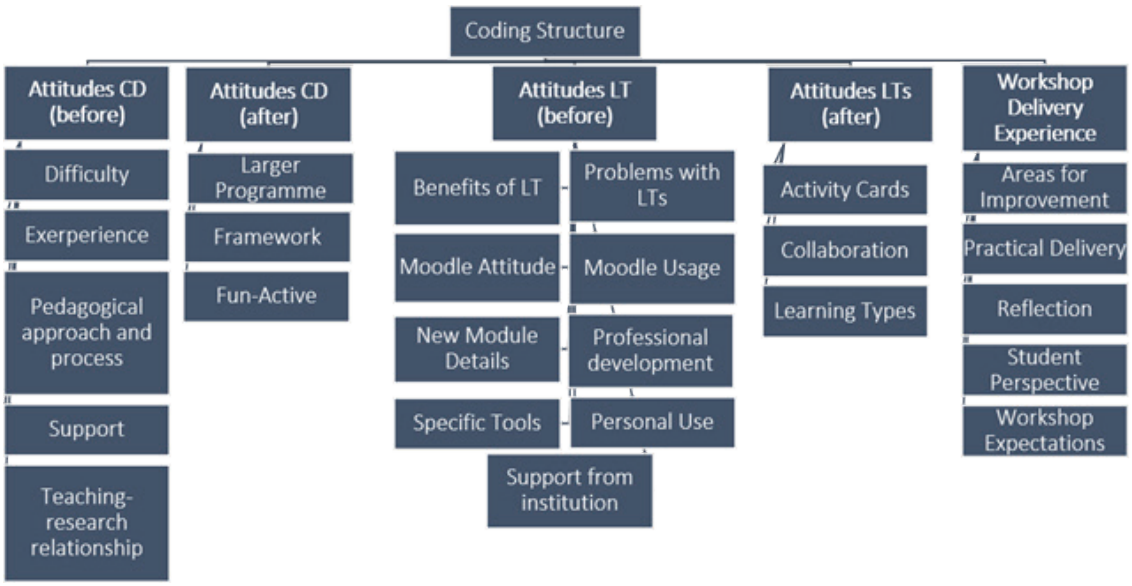
4.3. Participants

The participants were higher education lecturers in London, United Kingdom. The focus groups and interview participants were selected based on availability during the selected time period. Due to the restricted timeline of the study, the data collection period was limited from March to May 2017. In part, there was homogenous group sampling as workshop groups were chosen that were already pre-existing teams (Patton 1990). Within these groups, participants were purposefully sampled based on their availability and interest. The first case study revolved around a workshop that had 15 participants. Five of these participants took part in the research. Two did a pre-workshop interview and all five participated in a post-workshop focus group. Two focus groups were run. The second case study revolved around a workshop that had 4 participants, of which three participated in the research. All three participants did a pre-workshop interview and a post-workshop focus group. All interviews and focus groups were held face-to-face, except for the pre-workshop interview with participant 3. This interview was held via Skype due to limited availability for scheduling a face-to-face session.

4.4. Data Analysis

After the interviews and focus groups were transcribed, they were imported into N-Vivo 11 for coding of the data (QSR 2017; Bazeley and Jackson 2013). In order to stay close to the research questions, the first coding system followed was one of Structural Coding as it allowed the researcher to create an initial structure of the data based on the research questions by coding it into categories (Saldana 2011). In N-Vivo these categories are referred to as family nodes. After creating these categories, the "similarly coded segments [were] then collected together for more detailed coding and analysis" (Saldana 2011, p. 67). The nodes were thus broken down into different codes, aiming to find themes within those research question-specific categories, doing a Thematic Analysis (Saldana 2011, p. 139). The next-level codes were generally based on topic or evaluation. The resulting coding hierarchy can be found in Figure 6.

Figure 6: Coding Hierarchy



5. Results

5.1. Summary of Case Study A

Participants were generally quite experienced and positive about learning technologies (LTs) as many had experience with online and blended courses already. While participants had experienced some glitches with Moodle, UCL's VLE, they were generally positive about the tool. However, even the most digitally literate participants still struggled with some LTs at points and we need to be aware of this complex spectrum of attitudes towards LTs. After the workshop, participants lauded the learner-centred approach and the collaboration and reflection opportunities within the workshop, which should help participants to overcome any second-order barriers to integrating LTs relating to attitudes and beliefs:

> *"I think it was helpful for me to make a distinction between collaboration, discussion and investigation, kind of the terminology, and within that that you have examples what could be done, what activities within those domains or learning types, so that's very helpful too" (P5, post-workshop fg)*

> *"Working in a group to do curriculum design is really helpful. I had no idea how to, you can't bring everyone together and just have a discussion without having anything to pin it down with" (P4, post-workshop fg)*

> *"Having the workshop forced me to engage at all with it, 'cause I hadn't had the time to and yeah I can't tell whether it is having some time to reflect on this, you know having the time and having the space to do it, or whether it is the scaffolding that the workshop particularly provides." (P6, post-workshop fg)*

The activity cards were considered to be potentially useful, but most of the participants had not been able to sufficiently review them due to time constraints.

With a limited experience of curriculum design before the workshop, they appreciated the framework, collaboration opportunities and connection to the wider context that the workshop offered. However, the latter was not sufficiently done during the workshop. Some illustrative quotes include:

> *"Having a framework to get more concrete steps and ideas rather than just a kind of emerge yourself in it and do what you think without kind of guidance or framework" (P6, post-workshop fg)*

> *"It is more fun in a way. When you start to think of you have to plan the curriculum of module [...] it can seem a little daunting because it seems like a big task to do, so having this is an entry way into starting to plan curriculum which is nice, cause it is kind of a fun, you are moving, you are sticking things around, so in terms of breaking down that initial barrier it is good" (P8, post-workshop fg)*

> *"It gives you something to help bring the different modules together. It is quite clear that everyone had the opportunity to learn a little bit about the some of the other modules, even if it was just the Tweet at the start and then everybody has those as a common framework." (P4, post-workshop fg)*

Participants expected to be presented with a framework, to work collaboratively and to have some energy injected in the normally quite tedious curriculum design work. These expectations seem to have been met quite well. This workshop group also included a student as a participant, which participants also found very valuable and would recommend this for any future workshops:

> *"I think when our table got one student, so we got his feedback, which is very helpful, to see not just us the module tutors, structure deciding module, but get his feedback and their expectations and what is good and what they like so that's very helpful" (P5, post-workshop fg)*

Some points for improvement of the workshop included better communication with the participants before the workshop, recommend the workshop after participants have had sufficiently time to think about the content of the module (which links to better communication with participants beforehand) and better/more explanation of theory at the beginning of the session.

5.2. Summary of Case Study B

Participants were very experienced with LTs, with Participant 1 slightly less experienced than Participant 2 and 3 in the amount of different LTs that they use. All of them had experience with blended courses and felt supported by their institution and department to develop their knowledge of LTs. While they clearly did not like to use Moodle and some other prescribed technologies like TurnItIn, they were generally positive about using other LTs as long as they had a clearly-identified purpose. Again, this complex spectrum of attitudes towards learning technologies need to be pointed out.

After the workshop, participants were very critical about the activity cards and the spider diagram exercise, feeling they were not useful for them. Perhaps this was because participants were already digitally advanced and thus were more critical about these LT aspects of the workshop:

> *"I think it could open the way to more prescriptive activities when you are listing things. People could feel like they have to tick something, but they might be wrong." (P2) "I kept feeling like I was doing it wrong because I was never checking the boxes and it was profoundly irritating. Like here is another one where I am doing nothing that is an approved method" (P3, post-workshop fg)*

"I suppose at best this is just a thinking tool [pointing at the A4 Tweet and spider diagram sheet] like the big sheets you can take this away and put it into practise but it should have been made clear what this is" (P2, post-workshop fg)

The learner-centred framework, however, was found useful, even though participants did not discuss them at great length. The opportunity to collaborate and reflect on their module was also considered valuable:

"I think it was helpful to have some time face-to-face to talk with my collaborator who is very busy" (P3, post-workshop fg)

However, as participants were already frequently using LTs, this most likely has not addressed any second-order barriers.

With a limited experience of applying a pedagogical framework to their curriculum design (and one participant with no curriculum design experience at all), they valued the introduction of a framework and the ability to collaborate in contrast to working on it by themselves. They also appreciated the ability to discuss their modules in a wider context. Some illustrative quotes include:

"I guess before this I would have touched on some of these and included as a matter of course in a way how my pedagogy goes, but it was good to actually put them in blocks and actually put some strategy behind it rather than what came intuitively" (P2, post-workshop fg)

"I think the most effective thing we did was that walking on the paper with the coloured cards only because we did that exercise at the end which was related back to the programme itself […] because the actual content of the module is going to move depending on the cohort you have right, but the relationship back to the larger programme itself is never going to change" (P1, post-workshop fg)

Participants expected to learn about how to design their courses better, which was achieved through the introduction of the learner-centred framework. They appreciated the hands-on format of the workshop and the opportunities to reflect and collaborate.

Participants suggested some improvements regarding the workshop elements, which included leaving out binary distinctions of activity cards, creating a digital version of the workshop and including a worksheet to address the wider programme of the module. They also felt that the workshop should be held before the validation process, so that participants could actually apply what they had learned during the workshop as it was not allowed to change the courses after they were validated:

"It would have been more useful before I had my module validated than after, because we obviously have to hit the same things for module validation that we do, that we went over in the actual workshop itself, so I think the timing was a bit off" (P1, post-workshop fg)

They also felt that communication with the participants on the workshop's aims could have been better.

6. Discussion and Conclusions

Most participants in the case studies had quite some experience with technology already, having done online or blended courses before, and so the concept and workings of a blended course were not new to the participants. Both case studies had a participant(s) that was quite an advanced technology user (Participant 2, 3 and 4), having had positive experiences with a wide variety of technologies. All participants had had experience with Moodle, as it is UCL's VLE. While group A was generally positive about it, group B really did not like the software, showing that attitudes towards LTs should be viewed in a nuanced differentiated way as part of a complex spectrum. None of the participants had had a teaching degree, only some pedagogical and/or LT workshops or diplomas. Also, none of the participants had a lot of experience with curriculum design, a few having designed 1 or 2 curriculums before.

After the workshop, both groups expressed their appreciation of the learner-centred approach and the accompanying framework. As participants had very little curriculum design experience, this was considered a useful tool in helping them design their curriculum. Participants also found the opportunities for collaboration and reflection valuable. This was especially the case for participants in Group A and should help them with their development, particularly when it comes to their attitudes towards CD and LTs. Concluding, attitudes towards curriculum design most likely changed from before to after the workshop as participants had limited experience with CD and were not familiar with any pedagogical CD framework, and there were overwhelmingly positive responses to having a learner framework, time for reflection and opportunity for collaboration. It seems that UCL's strategic initiatives that have been built into the workshop from the start have influenced the participants' attitudes.

Neither group was very enthusiastic about the activity cards and spider diagram exercise. Group B felt that the activity cards were too binary and prescriptive, while Group A just had not really gotten the chance to look at time as they had run out of time. For Group A, the spider diagram was confusing as they had not fully understood the learning types, while for Group B they just did not understand the purpose of the exercise. Looking at the participants' diverse experiences with LTs and the mixed responses after the workshop, the workshop most likely did not change their attitudes towards the use of LTs. Reflection and collaboration, however, are important for changing educator's attitudes towards LTs when they are reluctant or hesitant to use LTs, which none of the participants were.

Both groups valued the opportunity to discuss their modules in a wider context, however both would have liked to have seen this aided for more. Group A heavily recommended the input of the student voice in the workshop and they also both liked the hands-on, interactive format of the workshop.

A summary of these findings can be found in the Table 1. A summary of the areas for improvement suggested by the two groups can be found in Table 2.

Table 1: Summary of the Study's Findings

RQs	Before	After	Change?
Attitudes towards CD	Limited experience, those that did have experiences saw it as an easy individual process, not based on any pedagogical framework	Participants were overwhelmingly positive about having a learner framework to pin their designs on. Collaboration with peers and time for reflection were also considered positive parts of the workshop	Likely
Attitudes to LTs	All participants had some experience with online or blended courses. A few were very experienced technology users. Participants had had positive as well as negative experiences with LTs.	While participants enjoyed the collaboration and reflection which are important for changing attitudes towards LTs, as they were already quite experienced this would probably not have had an effect. Participants were critical about the activity cards and spider diagram.	Unlikely
Workshop experience	n/a	Pros: student voice present, interactivity, collaboration (for design and for context), reflection Neg: see table on areas for improvement	

Table 2: Summary of the Suggested Areas for Improvement

Area for Improvement	Recommended by	What does it entail?
Stage of the workshop	Group A and B	While Case Study A emphasised that participants should not do the workshop too early on in their design process, Case Study B participants explained that once the course is validated it is not as useful. A balance needs to be struck.
Communication	Group A and B	Both groups felt that communication with the participants could have been better. They would have liked more information beforehand on what the workshop would cover and what they should (or should not) prepare or bring along.
Better explanation of theory	Group A	Participants felt that the learning type's theory was rushed and could be explained better at the start so they feel more confident going into the exercises. Group B did not mention this, but they did have more knowledge of the learning types before the workshop than Group A seemed to have.
Digital version	Group B	Participants thought the workshop 'screamed for' something digital, particularly when looking at the tweet and spider diagram exercise, also thinking about taking notes, erasing things, rearranging things.
Link to wider programme	Group B (and A)	Participants mentioned they would have liked to see more of a link to the wider programme by for example including a large sheet encircling the storyboard that shows where it fits into the wider programme. Group A also briefly mentioned that they wished they had had more time looking at each other's work as well as they ran out of time.
Rearrange activity cards	Group B	Participants felt that the binary distinction between conventional and digital activities was not helpful and suggested activities were too prescriptive/limiting.

7. Implications for Further Research

There are several limitations to this study, particularly because it was a small-scale pilot study. This was mainly due to restrictions of time and resources. Future research should look into a larger group of participants, perhaps draw on quantitative data from a large sample in order to have some generalisable results.

Doing research with more participants, either more qualitative case studies or quantitative large data sets, will also most likely give more diversity in the sample. In this research, all participants were women based at a UK university from just two different departments. A more diverse sample could address this limitation in the future.

Another limitation could include that the two workshops were delivered by different people. While there was not much specific feedback about the workshop organisers, the way they delivered it, perhaps deviating from the standard delivery, could have affected the participants' experience.

Additionally, this research only looked at participants' reactions right after the workshop. It could be argued that participants' responses right after the workshop might not be indicative of what they ended up taking away from it in the long term. It would be worthwhile to invest time and resources into a longitudinal study that actually addresses if the participants have implemented what they have learned into their final designs and how their opinions and attitudes might have developed by then.

Lastly, but perhaps most interestingly, as this workshop is built on UCL's strategic initiatives, it is worth looking into the impact the workshop has in other institutions and countries and if and how their own institutional strategies are brought into the workshop. Are the ABC Curriculum Design Workshop's building blocks able to break barriers across the board?

Author Contact Information
Email: kristyevers@hotmail.com

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