

First-year capstone assessments: a partnership approach to evaluating and exploring new assessment approaches

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Introduction and background

In March 2020, when it became obvious that COVID and lockdown were causing unavoidable and large-scale disruption, University College London (UCL), a large research-intensive UK university, took the decision to replace all first-year assessment with a single piece of assessment, a 'capstone'. Two key considerations drove this decision. First, there was a desire to provide an assessment type which allowed for a meaningful resolution to students' first year, enabling them to look back across their learning and progress into year two. Secondly, it was felt that a move to a single capstone assessment would alleviate stress and pressure for staff and students by avoiding the need to sit and mark the usual exams.

UCL, of course, was not the only place making swift changes to the way it assessed its students. What was interesting, however, was that wide-scale change was made in a way it never had been before. The idea of holistic and synoptic assessment is part of UCL's [Connected Curriculum](#) framework, and as such fitted well with its ambition for education. That said, six years after the launch of the Connected Curriculum, assessment of this kind had not been implemented across the institution, for various reasons. Pitt and Quinlan (2022) argue that the pandemic was proof that wide-scale changes can be made to assessment when needed, if there was a more agile approach free of burdensome – and sometimes unnecessary – bureaucracy. Sambell and Brown (2022) argue that some of the changes to assessment, particularly where more authentic and futures-focussed assessments were trialled, should now be either permanently embedded or used as a springboard to examine new ways to assess and give feedback to our students. So what could UCL learn about its emergency response to inform our thinking around assessments?

UCL commissioned an internal evaluation of the capstone with two overarching aims: to understand staff and student experiences of the emergency response; and to understand staff and student attitudes towards potential future capstone assessment. This paper is focused on the latter of these two aims. As such, this paper will not be looking across other emergency responses as a way of understanding its own response. Rather, it is the learning

from the emergency response that could inform the development of future first-year capstone that will be considered here.

The research was purposefully commissioned as a partnership with students, hence the involvement of Abbie King who brought considerable expertise in student-staff partnerships as lead for *UCL ChangeMakers* and *Student Quality Reviewers*. Involving students as partners in the scholarship of teaching and learning, shifts the role of students as the subjects of research and empowers them as active agents in the process (Harrington, Flint and Healey, 2014). Deeley and Bovill, back in 2017, were already exploring how to democratise assessment practices to involve students in both the decisions around assessment practices and the co-creation of assessments. They note that assessment is typically the domain of staff, and students are rarely involved in decision-making around assessment. This is something we have experienced at UCL with relatively few UCL ChangeMakers projects on assessment and feedback compared with other areas. For example, in 2021/22 there were six assessment and feedback projects compared to 38 aligned with the theme of 'Learning Communities and Belonging'.

This project, then, was a considered and deliberate decision by senior management, including Student Union (SU) Sabbatical Officers, that recognised that value of working with students as partners in the current, unknown world we found ourselves in during the pandemic and now coming out of it. It was important to understand *with* students which of our emergency measures were working and why, and involve them in decisions about assessments at UCL going forward. This continued an overall ethos of strong partnership working during the COVID19 pandemic where students were involved at all levels of decision-making, often through the dedication of our SU Sabbatical Officers.

Literature review: capstone assessments

Capstone assessments are most common in US and Australasian universities, whereas UK universities mostly rely on final-year dissertations (Healey, 2014) and UCL is no exception. Not surprisingly, assessments referred to as 'capstones' tend to be linked to the final or penultimate year of study, with the majority of scholarship and discussion treating it as the culmination of an undergraduate degree. In most cases it consists of a single project at the end of the degree, often supported by smaller projects throughout the degree (sometimes called 'cornerstones' (Ward, 2013)). Whereas traditional dissertations are usually linked to a particular genre (the research paper) and, to some extent, a career aligned with an academic track, Thomas, Wong and Li (2014) argue that 'the capstone is best conceived as an integrated study experience over a four-year curriculum' (p. 592). This view moves the idea of a capstone away from being mainly a *type of assessment* to being more of an *approach to assessment*.

Capstone assessment is usually linked to:

- Integration and synthesis of knowledge and skills;
- Transition from university to work or postgraduate studies;
- Developing reflective practice;
- Enabling closure.

Capstones, in contrast to traditional end-of-degree assessments, are usually designed to establish a deliberate link with, and transition into, the students' next phase, whatever that is:

An effective capstone experience supports transition through consolidating students' lifelong learning skills, such as resilience, self-confidence and self-efficacy, as the foundation for their future professional and personal lives. (McNamara et al., 2011, p. 5, quoted in Lee and Loton, 2017, p. 136)

This has been shown to have a positive impact on student learning and engagement, particularly those who were previously less engaged (Healey, 2014); Jones, Lewis and Payne (2020) see this as 'enhanc[ing] the student learning experience by increasing ownership of their education and enabling them to decide what they want to achieve.'

Healey (2021) gives a range of examples of capstones: students contributing knowledge to a website, doing journalistic work, engaging in community sector work placements, linking up with industry, producing artefacts and creative work alongside extended essays, films, cartoons and music, taking part in consultancy projects, working to communicate their knowledge to pupils in local schools, and many more. 'Opportunities for reflection' and 'providing a sense of completion or closure' (e.g. Thomas, Wong and Li, 2014, p. 587) are also repeated benefits of (or at least claims for) a capstone assessment.

If, as Sambell and Brown (2022) argue, we are striving for more authentic assessment practices – and to move away from the 'inauthentic', in-person invigilated exams that caused such grief during the pandemic – then these aspects of capstone assessments fit well with the values of authentic assessment as set out by Ashford-Rowe et al. (2014). They discuss critical elements of authentic assessment, including the production of a genuine artefact, transferal and application of knowledge, the ideas of challenge, and the importance of metacognition where reflection and feedback are key elements that build dialogue and community into assessment practices. These ideas of real-world relevance have been further developed beyond their relationship to the world of work, to include looking at the ways in which real-world can also apply to societal and political change, in line with the idea of civic responsibility (McArthur, 2023).

We have not, however, identified literature that explores the idea of a capstone in relation to assessment *early* in the degree, as UCL's emergency capstone set out to do. What we do find in some scholarship is a more diffused focus, usually centred on thinking about

assessment at a programme level and therefore seeking to align assessment throughout the degree rather than just at the end (Knight, 2000; Hartley and Whitfield, 2012; Jessop, McNab and Gubby, 2012; Jessop, Hakim and Gibbs, 2014; Lees, 2015; Jessop and Tomas, 2017; Timmerman and Dijkstra, 2017; Osgerby, Jennings and Bonathan, 2018; McConlogue, 2020).

Methodology

The research team

The evaluation was conducted in partnership between three staff (Jesper Hansen, Abbie King and Jason Davies) and two students (Gift Kalua and Alex Drijver-Ludlam). The students were recruited as Student Fellows, which is an hourly paid role (at London Living Wage) that we have in the Arena Centre which enables us to work on substantive projects with students. We advertised two separate roles: one that was open to all 2nd year undergraduate students who had taken the emergency capstone the previous summer, and the other for a postgraduate student with experience in qualitative research. The roles were advertised widely through student newsletters, the Student Opportunities panel, via the Unitemps jobs board and also through UCL Careers.

In the end we recruited Gift, a 2nd year Built Environment undergraduate student who had taken the capstone the previous summer, and Alex, an Education Studies postgraduate student with experience in qualitative research. This was important to the overall dynamic of the team to position us all as learners in the process and with something valuable and different to offer. As staff we had expertise in teaching and assessment (Jesper and Jason) and student-staff partnerships (Abbie) respectively. Gift was the only one who had experienced the emergency capstone and Alex had a deep understanding of critical education research. The knowledge, experiences and perspectives that we each brought to the project was something we reflected on regularly as part of the partnership process, both to be mindful of the deep-seated identities within higher education structure and to enable us to recognise and celebrate times of transformation. This is an important part of the student-staff partnership process, as reflected on by Mercer-Mapstone et al. (2018), in truly enabling partnership spaces to be free of old identities which reinforce hierarchies rather than redefine relationships.

Student-staff partnership was crucial to the design of the research from the outset. Involving students as research partners meant the approach to data collection and subsequent analysis was viewed through the lens of current UCL students as well as staff. As discussed by Welikala and Atkin (2014) and Harrington, Flint and Healey (2014), there is growing interest in researching the experience of students in partnership with students. This approach enriches enquiries that would previously have been conducted by staff

researchers and interpreted only through their lens as staff researchers. Involving students in our research felt vital to the project as our two students approached the research free of some of the biases, assumptions and expectations that we, as staff working in an educational enhancement unit, can bring to the process. Many of our meetings were spent surfacing and discussing certain assumptions or beliefs that we each brought. For example, as staff, we reflected on the hope that the research would reveal a more authentic and meaningful assessment experience than in-person exams afforded. The students also reflected on their motivations for joining the research:

- Both students wanted to improve the student experience and teaching and learning at UCL and could see the potential value in capstone-style assessments.
- The prospect of being a part of UCL staff's learning and contributing toward potential changes, especially knowing that the project had interest from senior leaders, made the role particularly appealing.
- In addition, working on the project provided opportunities for their skills and professional development.
- In a practical sense, it was also necessary for them to undertake paid work alongside studying, and they valued a role that related to their interests, professional development and studies.

These regular update, discussion and reflection meetings were so pivotal to the partnership process, bonding us all as a team of researchers, as a 'we' rather than an 'us and them' that Mercer-Mapstone et al. (2018) describe as a signifier of new partnership identities.

Research design and data collection

In alignment with our aims to understand the experiences of staff and students and their thoughts on capstone-style assessments, we used a qualitative research design. The research team collected in-depth data via semi-structured interviews (staff and students who opted for an interview) and focus groups (students), conducted online via Zoom. This enabled us to explore topics in detail and better understand why staff and students had experienced what they had, and what had shaped their opinions.

Our research question was necessarily open in order to enable the full range of experiences and thoughts to emerge during discussions. Knowing that there were a wide variety of capstone tasks set, we were keen to use the research as an opportunity to talk to staff and students about the potential of a future capstone assessment alongside their experiences of it as a piece of emergency assessment. For the student focus groups/interviews, this required some explanation, but it was felt by the whole team that this was a unique opportunity to allow the UCL community to think through the future application of capstones in the first-year, based on the theory, regardless of experiences.

Research articles

The data collection was carried out between January and April 2021 and the analysis was conducted during the summer of 2021. All student participants were offered an incentive of a £10 Waterstones voucher to participate, sent to them electronically after the focus group. In total, 58 students attended focus groups, 3 students opted for an interview and 18 staff attended an interview. We were keen to ensure we heard from students across all our faculties in the focus groups. Therefore, we organised the focus groups into three faculty groupings, which enabled us to focus recruitment in particular areas if needed:

- **Faculty Grouping 1 (identifier: SLASH):** Social & Historical Sciences, Arts & Humanities, Education Studies.
- **Faculty Grouping 2 (identifier: SLMS):** Life Sciences, Medical Sciences, Brain Sciences, Population Health Sciences
- **Faculty grouping 3 (Identifier: BEAMS):** Built Environment, Engineering Sciences, Maths and Physical Sciences.

In the end, we recruited at least one student and member of staff from each faculty.

The whole team was involved in data collection. Due to time restraints, we divided into two teams. The first team comprised of two members of staff (Jesper and Jason) who took on the staff interviews and the second team comprised of one staff member (Abbie) and the two Student Fellows (Gift and Alex) who ran the student focus groups and interviews. As Gift was new to qualitative research, we ran the focus groups in pairs, with one person taking on lead and one taking on a support role. This gave an opportunity for Gift to participate first in a supportive role, before taking on the lead role. The support role and lead role were shared equally between Abbie, Gift and Alex so that we each led three focus groups and supported three (totalling nine focus groups).

Data analysis

All researchers were involved in the thematic data analysis (Braun & Clark, 2006) which allowed for the data to go through multiple stages of coding, discussion and revision. Again Gift, our undergraduate student, had minimal qualitative analysis experience and so Alex took on a mentoring role to prepare and support him through the analysis stage. This was a deliberate approach that we took when recruiting students, with mentoring explicitly mentioned in Alex's (as a postgraduate student with research experience) job description. Our experience has been that such an approach can mitigate some of the tensions between needing to empower students in a co-research partnership model and also providing training and guidance when students are new to research. This tension was explored by Dollinger et al. (2022) who reflected that these moments in the partnership process can easily tip individuals back into traditional staff/student roles. Empowering students with more experience to mentor other students, however, shifts that power away from staff.

We were clear that students needed to be part of the analysis phase as it was key to hear and discuss each of our interpretations of the data through our particular and unique lenses. The approach we took was to first engage individually with the data before discussing our interpretations as a team and then revisiting the data based on refined and agreed themes. We then came back together a final time to agree on a final set of themes, key findings and recommendations. This final stage should not be seen as an attempt to test the validity of our individual analyses (which is antithetical to how Braun and Clark position their version of thematic analysis), but rather as the phase where we established cross-cutting themes and decided which ones best addressed our research question. These iterative discussion meetings were pivotal moments where we looked at terms, codes, the meanings we were attributing and the understandings we were developing, both independently and how these evolved through discussion. The process of discussion and reflection before returning to the data meant that we each developed a deep engagement with our data.

It is worth noting that by the data analysis stage, we had been working together as a team for many months and engaged in countless hours of meetings where we had been continually discussing and reflecting on the project, our roles, our beliefs and assumptions, and generally getting to know each other well. This meant that by the time of the analysis stage, we were very much working as a team of researchers in a relationship of trust, so we were all confident in raising ideas, challenging each other and discussing data and our progress. This is an important point to note, and others (Marquis et al., 2016; Dollinger et al., 2022) have cited the fact that it takes time to build up these trust relationships that empower all to engage equally, which can be a barrier to engagement when co-researching with students, especially if time is a limiting factor.

Findings: first-year capstones for the future?

A note on participant identifiers

We refer to research participants under pseudonymised identifiers using the following convention:

- Faculty grouping / position as staff or student / participant number

An 'i' following the identifier signals the student opted for an interview rather than a focus group.

A note on capstone tasks

UCL provided an over-arching framework for the capstone but it was left up to departments to set the tasks, as they are best placed as disciplinary experts. It is therefore only natural that our research found different approaches to the capstone. For interest and transparency, ideas for potential capstone assignments have been provided as Appendix A,

based on the range of tasks set and to provide a stepping-off point for future discussions. However, there was not time during the research to do a detailed analysis of staff and student experiences against the nature or features of the different capstone tasks set. Rather, we have tried to draw out in our analysis what it was about certain tasks that provided meaningful learning experiences.

Synthesising first year learning

As discussed in our earlier literature review, a key component of capstone assessments is their role in enabling students to synthesise learning and development across the year, which was discussed by both staff and student participants. Students whose capstones enabled these types of experiences appreciated it, describing, for instance, their capstones as 'comprehensive' (SLMS Student 4). Having this breadth of coverage meant that the capstone felt like a meaningful application of their first-year learning:

I thought our [capstone task] was really good, because [...] you had to design your own project, basically. So you had to understand what kind of theoretical principles, the practical side [...] how to look at the history of the place, which was all different parts of different modules that we had. (SLASH Student 12)

It was definitely interesting to see how all the modules could be linked to one thing. (BEAMS Student 19i)

Students tended to have a better experience of the capstone when they were able to apply their learning to a real-world problem:

I felt really excited and so, because obviously I was applying my knowledge to current events which I really enjoyed writing about and I feel like it [...] encouraged me [...] to watch the news and read the news a bit more. (SLASH Student 4)

[I]t made me think on my feet [...] for my capstone they asked us how notions from our courses can help during the pandemic, so how can some stuff that we learned be applicable to the situation right now, so it was very relevant to what was happening, and it kind of made us think about things and how to solve problems. (SLMS Student 9)

Some of the capstone tasks also helped students see the relevance of what they were learning in relation to the real world, which could otherwise feel quite abstract:

The problem with us in [name of discipline], it's like you learned something, and you're not really sure how you're going to use that in real life. So that's definitely something that was interesting. (BEAMS Student 19i)

Capstone assessments, therefore, went beyond testing their learning to helping students understand its applicability in a real-world setting. It became part of the sense-making process of education.

There was some scepticism amongst both student and staff groups about how far a capstone would enable students to sufficiently draw together their first-year learning. Some felt the disciplinary context would make that problematic because they were too practical or heavily maths-based. Others felt there was no way they could see the capstone being able to draw together all that knowledge in a meaningful way. However, some staff explained that they did not see this as a problem with the capstone; they argued instead that specific knowledge/skills could be assessed within the modules themselves. Some students and staff felt that their current assessment types, especially where these included comprehensive project work or lab reports that mimic industry expectations, already fulfilled this and worked well in their subjects. They did not see how the capstone would be able to enrich that approach further.

There were also challenges associated with the synthetisation across learning, particularly where the tasks introduced new concepts that had not been covered as a lens or framework to link together learning across the year. One student described, for instance, the sudden introduction of UCL's Grand Challenges as confusing. Another student in Life Sciences described elements of their capstone task that introduced new concepts which required a lot of extra reading as 'dizzying' (SLMS Student 4), which suggests that capstone projects (or any kind of programme-level assessment) need careful scaffolding.

A more flexible, exploratory approach to assessment

Despite the hesitations outlined above, the diverse comments from our participants suggest that a capstone can take a number of different forms and that it is flexible enough to work in a range of academic contexts. In a highly modular structure like UCL's, it can potentially act to counterbalance fragmentation by helping students see the bigger picture right from the beginning of year one, rather than that being exclusively a feature of later assessment, such as final-year projects and dissertations:

[O]ne of the feedbacks from students is that they don't see a holistic view of the different modules. So they had this opportunity to look at what they have learned and how they link with each other. (BEAMS Staff 4)

This was seen by several participants as being much more academically suitable, not least for staff who mark the work, and a key step in students' academic journeys. The image of students who traditionally 'regurgitate' what they are taught is replaced with one where '[e]very single one of these was different; they all did something original' (SLASH Staff 16).

Research articles

Students, particularly those who would normally be assessed by exams, saw clear value in the capstone allowing for links to be made between modules:

[The capstone] also allowed me to make links between the modules that I don't think I would have done if I'd been studying for exams where everything is separated per module. (SLMS Student 11)

Some students really liked being able to choose and focus their capstones on their areas of personal or current interest, or to help shape their academic journeys.

I really enjoyed the fact that we could do something specific that really interested us. (SLASH Student 7)

[W]e needed to conduct research and we could choose the topic, we could do any research we wanted. So [...] I wrote basically a proposal in some – in an area that I was really interested in. So that's why I found it interesting. (SLMS Student10)

This is a particularly salient point, as students rarely get to personalise their assessments to meet their individual aspirations for study. This is not only highly motivational for students, but also has further-reaching implications from an inclusivity point of view, enabling students to co-design assessments that help them engage in a way that meets their needs, as described by JISC (2018).

Some students, though, did also reflect that there is a danger of choosing an 'easy' option or something that will not particularly help them develop, which suggests that there needs to be support and guidance to help students choose topics/questions that will help their development. However, students also felt that even if the topic they chose did not ultimately end up being one they enjoyed or had interest in, this chance to explore and try things out would be important learning in its own right:

I think the value of adding a capstone in some places is that you can both link things, and also push the barrier a little bit to discover whether you love or hate something, but either way, it helps you. (SLMS Student 5)

This idea of being able to 'try things out' was really valued where the capstone permitted. It was something that students perhaps had not had an opportunity to do previously:

[W]e could go in different directions. And even though it's one question, we could still explore different avenues within that module. So I quite liked it in that sense. (SLMS Student 3)

There were also clear benefits for staff. In departments where they worked with reflective capstones, staff experienced a connection with students that they had not had before:

[O]bviously in a normal academic paper, you're not necessarily revealing yourself like that [as a student ...] yet with this, it can almost be seen as an opportunity for them to ask for help or ask for input. (SLASH Staff 11)

This became part of a conversation that continued into the second year, touching on personal aspects (such as belonging and wellbeing) as well as academic aspects (such as skills and knowledge) and speaks to the potential value of a capstone in creating a broader learning community and sense of belonging.

While both staff and students could see, and some had experienced, these benefits, it was also clear that staff would not want the capstone to replace all current assessment:

I'd want there to be for each course sort of a summative-type smaller assessment, whether it's only a multiple-choice test, but something that's making them sit and revise for all of those subject areas. And then think about their whole degree in terms of a capstone. (SLMS Staff 3)

I think if it was that sort of proportion [50%], that would allow us to ensure that students have sufficient foundational knowledge across a range of things. (SLMS Staff 17)

Likewise, students liked the idea of retaining smaller assessments in each module that would enable them to test their knowledge and reassure them that they had a good grasp of the content before applying that knowledge to real-world problems.

So, while modular assessment was seen as important, many of our participants saw ways to address this, and most suggested that a balance could be achieved.

Conclusion

Both students and staff expressed an interest in the ideas underpinning capstone assessment. Students were positive about the prospect of being able to engage with current issues and applying their modular knowledge and skills to something bigger in a more holistic way. Some of the capstone tasks provided opportunities for students to begin to look across their learning and apply it to real-world scenarios, which provided a richer learning (and marking!) experience. This links back to ideas around authentic assessment, whereby the application of knowledge to real-world challenges makes assessments more engaging and more meaningful (Sambell and Brown, 2022). It also ties back in with Healey's research (2014) that capstones assessments can re-engage students and contribute to their success and agency in their learning. This is evident in the active language students were using to describe their capstone assignments, showing how they were engaged and motivated by the tasks that connected them with something that was real, that was current or that held personal interest to them. However, many also expressed doubt that this would

work in their particular disciplinary context, and this suggests that staff would have to scaffold the capstone carefully. Again, this is where the authentic assessment lens is useful, as it was clear in these examples that some current assessment tasks do indeed manage to create meaningful learning experiences.

Staff saw many benefits to capstone assessment, not least as a potential antidote to modular fragmentation of learning and assessment. As long as some modular assessment is retained, the capstone is seen as well suited to allow for more mature and authentic responses from students, which is part of their intended academic progression. In addition, as an approach to assessment, the capstone could provide opportunities for students to personalise their assessments to meet individual aspirations or needs, which creates a more inclusive learning experience.

Reflections on the partnership aspect

Finally, we would like to reflect on the success of working with students throughout the research project, which has led to further scholarship of learning and teaching work at UCL, especially around assessment. For example, some recent projects looked at how to embrace the developments of AI and another project to develop a richer understanding of the challenges around academic integrity. Having these conversations with our students at a time of huge change in the sector can only make us more resilient and ensure the decisions we make benefit everyone. In a similar way to how working in a team on this project encouraged additional motivation and accountability to progress with the project, democratising assessment practices and decisions around assessments unites us as a community towards a shared goal.

For us, a true test of the success of our partnership work was that we were not staff and students, but ultimately colleagues who were equally diligent and committed to the project. From the students' perspective, working as equal members in the team felt genuinely collaborative and reciprocal and they felt there was mutual trust and respect for each other's contributions.

For others working as co-researchers, we would encourage you to reflect on the following learning points from our project:

1. We invested a lot of time at the beginning to create a collaborative and reciprocal environment which set the tone that we are all learners and all have value to add and areas to develop.
2. For the student researchers, having more than one student intern on the project was incredibly valuable because it allowed them to have more 'stake' or 'voice' in the project, and support each other with their contributions and navigating the project more generally.

3. Our student researchers had a huge role to play in the focus groups with students to understand their experiences of the capstone. They provided important insight into the struggles that students have faced this year, which enabled us to approach the student focus groups with greater care and understanding.
4. The analysis of data was probably the most difficult stage of the project. Finding a way through group analysis that works for the whole team, without reverting back to traditional staff/student roles was a challenge. The aspects of peer support and ensuring there is plenty of time dedicated to this stage were crucial, but a potential barrier for projects where time is a limiting factor.

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