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Teaching through objects: a user's perspective
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This paper began as a curator's question: how can a museum increase the use of collections in teaching? In an important way, I'm not the best person to ask this question. I'm too keen. I *want* to bring collections into my classes, and I *want* to take my students into museums. This question provoked some reflections on the processes we tutors go through while making curriculum decisions. What barriers prevent more use of collections? What causes these decisions to turn one way rather than another?

Make no mistake: the use of object-based learning (OBL) in teaching is hard work. Undergraduate tutors who want to introduce OBL will face obstructions. This is true especially in the humanities – my domain – where demonstrations and laboratories are the exception rather than the rule.

Again and again I came back to three types of barriers as especially important: competition, logistics, and pedagogy. In this paper, I describe each type, then offer some ways to decrease their importance. Museums promoting OBL should take these barriers seriously if they want substantial uptake for any new OBL initiative.

avoid the deficit approach

First, a warning.
The most familiar strategy for increasing interest in OBL and museum collections is the broadside: mass distributions of information, loud calls for participation, invitations spread far and wide.
Such strategies rely on a "deficit" model for communication: we assume the audience has a knowledge deficit and we assume this is best remedied by providing more information. The deficit model is frequently expressed with declarations such as, "we just need to get our message out," or "let's circulate our catalogue to all interested parties," or "what about an all-staff e-mail?"

The deficit model fails to increase involvement because it wrongly assumes the problem was a lack of knowledge. Moreover, the linear process it presents as communication (sender to transmitter to receiver) is, in reality, a monologue. It offers no way for the sender to gauge reaction, assess need, or monitor interest. Neither does it allow the receiver to customise information for their own purposes (Gregory and Miller, 1998). Simply talking more, or simply talking louder, seems to have little effect on most users' knowledge, understanding, or level of engagement. This explains why broadsides are a poor strategy for expanding OBL and the use of collections.

More effective models of communication stress dialogue and engagement. Communicators must understand a user's goals and appreciate their particular styles for learning. The key idea is empathy: see the problem from the user's point of view. A user's perspective on the expansion of OBL and the use of collections should begin with a study of barriers inhibiting participation. What prevents a tutor from adopting OBL? Assuming they already have some idea of a collection's inventory, three types of barriers jump into the foreground.

barrier 1: competition

Know the competition.
Competition is stiff in today's audio-visually complex undergraduate classrooms. When I design an OBL exercise, museum objects are only some of the options I have at my disposal. Before I chose to work with them, I consider other options:

- mental pictures I can paint through oratory

- objects I can provide myself

- images I can project in the classroom

For my purposes, these can function as objects in OBL sessions. In fact, these are my first ports-of-call, especially as I now have reliable access to data projectors. This means I can draw from the hi-quality colour

images and video sitting in my laptop. Such resources are serious competition to any museum collection, and choices for OBL are made accordingly.

A decisive factor in this competition is simplicity. I need information, examples, and demonstrations to be clear, clear quickly, and easy to supply. Often I work at short notice, from tie-ins I choose the day before. In addition, most of my choices about objects for OBL exercises use a *sufficiency* criterion: objects need not be ideally suited; they simply need to be *good enough*. The key point is competition. Even after I adopt an OBL approach, I'm not committed to using museum collections. Many factors influence my choices as to which objects I use and how I structure those OBL exercises.

barrier 2: logistics

Logistical concerns form a second type of barrier to expanding OBL and use of collections. All tutors are familiar with lecture scenes where nothing seems to work, people fiddle with the technology, no one can see what they're told to see, there's no way to backtrack, and so on. No one wants to repeat these themselves. Moreover, we're under considerable pressure to complete certain learning objectives. This pressure discourages risk taking. For us to see OBL as a viable alternative, tutors have to be sure it will work smoothly.

Imagine a simple demonstration showing some early microscopes. My purpose might be to ensure students see, literally see, organic material using equipment comparable to 18thC technology. Before agreeing to add such a demonstration in my course, I'll want various logistical issues solved. These include:

1. time – can I ensure the material is delivered, set up, and removed in the tight window of my assigned timetable (normally, 50 minutes ± 5 minute intervals before and after).

2. access – everyone in the session must be able to participate in the activity and move around the room. For me, that's normally 20-30 students. Can this be done in the time available? What are the other students going to do when they're not using the microscopes?

3. background knowledge – when am I going to prepare students for this activity? Do they know I want them to see the microscopes as technology, to compare the objects on view, to think about the relation between observations and conclusions ("seeing" vs. "seeing as")?

4. distractions – how do I balance the need to focus student attention on my objectives vs. encourage an open-ended experience?

5. shut off – when my objective is achieved, the job's done and I'll want to move on. I need effective transitions.

6. recording – what records preserve the student experiences? What note-taking needs to be done? Students need to be able to recall and reflect on the activity both for their own purposes and for revision.

7. supplements and alternatives – what am I providing for students who miss this activity? What happens when students want to know more?

8. backup – taking risks is easier if I know I have a back-up: e.g., when students can return to study a permanent display; or, when I can substitute a reading.

University tutors worry about such logistical concerns because, as a group, we're poorly trained for activities outside chalk-and-talk methods for delivery. We're certainly less experienced compared with primary and secondary school teachers. Any one of these logistical concerns can skewer an OBL exercise. The fear this might happen creates an important barrier to risk taking via OBL projects.

In addition, tutors need to be convinced OBL offers high value-for-effort. Count this in two ways. Time spent on an exercise not only must relate *in fact* to course objectives. It also must *be seen to relate by the students* to those objectives. It's not that I'm tied to a culture of teaching simply for examinations. In fact, I normally find students remarkably willing to follow my lead. But they'll do this only when they're confident I'm not wasting *their* time and when the tasks I set seem eventually and somehow to relate to the course's learning objectives. If they trust me, I have considerable latitude.

Trust cannot be stressed strongly enough. The effectiveness of alternative teaching techniques relies on it. Anyone proposing OBL activities to me needs to keep it in mind. I won't risk losing the students' trust unless I'm confident activities will flow roughly as planned. The last thing I need in a teaching technique is a way to lose something like the trust I've worked hard to build. That'll leave me with more problems than solutions, and it'll stop me from using this option again.

Are logistical concerns so large a barrier? Many museums have staff well-trained to solve logistical concerns such as the problems I describe. Well-rehearsed routines support visitors like me and my groups. However, university tutors new to OBL and museum roles likely won't know this. Liaison here is crucial. Show us you've anticipated our needs, and you'll earn our trust.

Again, the point is simple: logistical barriers, real and imagined) restrict the expansion of OBL, especially with collections and within museum spaces. Some of these concerns grow simply from inexperience on the tutor's part. Tutors need someone to help them work through these concerns. The easier the solution, the better. Remember, competition is intense. While I might agree, in the microscope example, that peering firsthand through lenses is ideal, I'll quickly settle for an alternative, such as a few photographs or a video clip. It won't be perfect, but it'll accomplish my objectives in the short time I have available to accomplish them.

barrier 3: different learning

OBL asks tutors a great deal more than the occasional demonstration and tour. Indeed, its very appeal comes from the fact OBL can promote learning in ways vastly superior to what's found in a typical university lecture. Those advantages are easy to identify.

OBL promotes active, student-centered learning, which a considerable literature advocates for drawing students into high-level and deeper cognitive processes (Hein 1999). Hooper-Greenhill (1994: 145) relates activity to recall rates after learning: use of interactive exhibits and handling or talking about objects promotes recall rates as high as 90% compared with reading (10%), hearing (20%), and watching (30%). More significantly, Biggs (2003) argues pedagogy emphasizing active learning has considerable value for widening participation, as active learning reduces the impact of differences in preparation for academically and non-academically committed students. It also is a centerpiece in constructivist learning strategies.

Jeffrey (2000) defends active OBL for promoting different types of cognitive gains: factual knowledge, conceptual knowledge, process knowledge, curiosity, heuristics, and affective leaning. This helps explain why OBL has a long history within museum communities. Hooper-Greenhill (1994) argues OBL provides important opportunities for conveying symbolic meanings and promoting empathy, for stimulating imagination, and for assisting students in placing themselves within larger communities of understanding. McLaughlin (1998) stresses the importance of multi-sensory experiences, which OBL provides, for developing the emotive associations underpinning not only reflection and synthesis but also cultural memory. Furthermore, OBL can be a strategy for developing student abilities across the seven "intelligences" distinguished by Gardner (1983): linguistic, logical-mathematical, spatial, musical, kinesthetic, inter-personal, and intra-personal.

OBL is used widely to develop perceptual and observational skills. It also is a flexible teaching tool, with value easily added. For example, it can be coupled with collaborative learning and reporting. Alternatively, it can encourage self-directed learning. This is recognized as a key preliminary for informal and life-long learning.

Turn these advantages around and the third type of barrier presents itself. Simply put, OBL demands tutors teach in a way that's different from the familiar techniques of most university lectures.

When museums promote OBL with their collections, collections are only half the item actually being promoted. They also ask me to learn OBL. Don't forget, for most tutors OBL is a radical change in their approach to teaching. Expect some to be malleable, even eager. But don't overlook the magnitude of this suggestion for others. Some tutors argue students can't learn when they're talking. Others hate interruptions for questions. Others set goals to deliver a fixed amount of factual information. If that quota is not met by the end of a lecture, they panic for fear nothing will be covered for regurgitation on the exam.
OBL asks for pedagogical skills some tutors simply don't have. It's like selling cars to people who don't

know how to drive. The point is so obvious it often is missed: OBL arrives in a tutor's life as a *pair* of ideas: something about objects and something about learning. Ignoring the other half of this combination means you minimise the impact of any OBL initiative you care to launch in higher education.

Each of these three barriers suggests opportunities to exploit for those proposing OBL to tutors. I'll consider several for each.

opportunities 1: competition

A picture can be worth a thousand words.

Supplying images for classroom use can be as valuable in OBL as offering objects themselves, demonstrations, or gallery visits. While images aren't always ideal, they're good enough for many purposes. When I use images, I can avoid many of the logistical problems mentioned above. Moreover, I can deliberately choose images from a specific collection when I want to promote that collection for other uses, such as informal learning.

Think about pairing *images* and OBL as much as you think about pairing *objects* and OBL. I acknowledge concerns associated with IPR. But, we can find easy solutions past this impediment. Watermarks, increasingly used by digital archives, seem a good compromise.

A more important downside for museums probably involves visitor statistics. With images, I'm still "using" a collection and basing my learning firmly around its objects, but any census of visitation is likely to miss this. Hence, the museum loses evidence of an active, sometimes substantial, audience. No problem is insurmountable. Might we create more realistic criteria for counting "use"? On the tutor's side, I acknowledge we users need to be more vocal about the value we place on a museum's efforts and resources. In fact, because so many tutors think it's clever to use these sorts of things in teaching, simply asking us about use surely will elicit no end of gratitude. That'll come in handy when you report visitor statistics.

opportunities 2: logistics

Logistical barriers often are site-specific, hence there is little general to say about them. Other than reiterating the need for smoothly running operations, one suggestion will do. It involves packaging.

Think how resources are packaged for use. Options preferred by users may not match the packages museums normally offer. Or, more likely, tutors simply need to be reminded about the options available for use. A 5-minute show-and-tell involves a much different kind of commitment for a tutor compared with a 60-minute hands-on activity or a half-day visit to a gallery. Focused and compact packages are easily integrated into the rigid lecture schedules I am forced to use.

Some of the packages convenient for me certainly will be beyond a museum's capacity to deliver. If I can't fit a gallery visit into my lecture schedule, then you might suggest ways I could imbed collections into coursework. How do I turn a gallery visit into an essay assignment? I don't always need objects to be physically present in the lecture hall for them to be part of an OBL exercise. In lecture, I need only encourage visits and draw connections. Constructing a reason for a visit will accomplish OBL goals while also avoiding the logistical problems we both want to avoid.

opportunities 3: pedagogy

Two ideas suggest solutions to some of the pedagogical barriers to collections-based OBL. The first is a light-hearted idea with a serious point.

There are times when tutors express frustration with how *little* an impact they seem to make in their courses. Use those moments to pounce. "Regurgitation doesn't have to be the only learning objective," you might explain to me during such a moment. "Other kinds of learning can occur in teaching sessions." For instance, you might remind me:

1. students respond to breaks in routine: I should get them out of the classroom.

2. universities are research institutions; much more than classrooms and computer clusters; I should remind students of this.

3. institutions are repositories of knowledge and culture; curiosity can be encouraged with open-

ended exploration. This will improve a student's sense of personal ownership in their knowledge.

4. learning shouldn't be focused solely on exams. Then again, neither should teaching.

A much less direct approach offers a second route to exploiting the problem of pedagogical barriers. Tutors receive an endless stream of suggestions for additional resources: new textbooks, new on-line resources, more information, and so on. Don't simply add one more with an announcement of available resources. That certainly will be lost in the crush.

Instead, embed OBL into the processes tutors undergo when building curriculum and improving their pedagogical skills. For instance, most universities now have tutor-training programmes as part of their quality assurance work. Try to embed OBL, and OBL using specific museum materials, into those programmes. OBL is a natural partner with group work and student-centred learning, for instance. Use those training courses as a start by ensure your collections become the standard examples and case studies used in the training. Or, offer training courses yourself, such as on "OBL using local resources," or "teaching in non-traditional spaces." This embedding integrates your collections into the systems tutors use (sometimes they are required to use these systems) for training and innovation. This is where long-term, programme-level impacts will come.

On a more mercenary line, seek out departments due for audits of their teaching quality. Point out, for instance, the ties between OBL and the QAA benchmarks most disciplines use in these audits. For instance, OBL can provide core and transferable skills across a wide range of disciplines – e.g., appreciating the complexity and diversity of events and mentalities (QAA benchmark for history), critical engagement and reflection (philosophy), interpreting data and its variation or relating theory to practice (mathematics), promoting imaginative reflection and appreciation of context (English), appreciating changes in temporal and spatial scales (Earth sciences), appreciating the skills and practices of past practitioners as well as their roles in producing, interpreting and making use of knowledge (history of science, technology, and medicine). Develop these ties, and you'll be thanked for solving two problems in one stroke.

The key idea is to shift your marketing from cold-calling to embedding. Train your users in the skills they'll need when teaching with objects, and do it with the materials you want to make available. Teach me to drive; then, sell me the car. Teach me to drive in *your* car, and my preference for it will seem natural. Marketing agencies use this strategy all the time. Why do you think so many computer and software companies offer such large educational discounts?

conclusion

Three key points rise from this analysis.

First, abandon the deficit model for communication. Mere broadcasting won't have much impact. What's likely to help most is a focus on the problem from the user's perspective. Design your thinking around questions such as what barriers prevent tutors from using OBL in general or using OBL with specific collections?

Second, adopting a user's perspective will remind you some barriers have nothing to do with museums or the objects themselves. Teaching through objects is hard work. Stiff competition points users in other directions. Logistical concerns can overwhelm tutors, especially the inexperienced ones. OBL also asks a lot of tutors. For some, it asks more than they're willing to give. It arrives in most tutors' lives as a combination: new objects *plus* new styles of teaching. If collections aren't presented as part of that package, they'll be received as only half a solution.

Finally, I write as a user. Let me speak for them by sharing the excitement museum staff have for OBL. It's a fabulous teaching tool. It makes learning a joy, and it can inspire students when all else fails. Everyone remembers a moment when they learned something new in a museum. Tutors like me are grateful for the work museums do, and we support those efforts 110 percent.

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Figure 1: Philosophy of biology students discuss "progress" and "species" concepts in the Grant Museum of Zoology and Comparative Anatomy, University College London.

Figure 2: A picture is worth a thousand words. I don't need to take students to museums myself if I use photographs to train their eyes. They can visit collections on their own time. The Pitt Rivers Museum, Oxford.