

“Learning environment” – the context in which learning takes place

CT: The “learning environment” that we provide for our students traditionally has been thought about in two dominant forms: the physical, and the socio-cultural. The physical environment includes things like: chairs arranged in a circle or around a square table, provision of residential college, access to library and other information resources, access to laboratory or other discipline-specialist environments, and so forth.

MH: I’d suggest the “learning environment” that we provide for our students at Oxford nowadays takes two *different* dominant forms: the physical and the virtual. Both allow us space to explore the socio-cultural. The physical environment includes things like: chairs arranged in a circle or around a square table, yes, access to library and other discipline-specialist environments, and so forth, but the virtual environment which supplements our physical environment offers us an opportunity to work outside the restrictions of time and place. We do not need to stay in our chairs to continue the discussion, we can build and reflect and return to the topic in threaded discussions. We can explore details and processes over and over again, drilling down into images, listening again to key explanations, revisiting challenging concepts. We can also access the library online collections at anytime from our bedrooms, or an internet cafe.

CT: The socio-cultural environment, and what we can do to influence it, is less straightforward to get our head around – at least at first glance. In a paper entitled *Cognitive Apprenticeship: making thinking visible*¹ – the subtitle says it all – the essence of much good teaching practice, and its role in shaping an appropriate *learning environment*, is summed up or represented using just a handful of keywords (see Table overleaf). These have served me well in nearly ten years of using this framework with colleagues seeking to improve how to deliver on the expectations that they experience as teachers in higher education. These keywords relate both to actions taken by the teacher: **modelling; coaching; scaffolding** (and fading); and actions requested of the student: **articulating, reflecting** and **exploring**. I’ve inserted the word *fading* together with the word *scaffolding* because it helps to signify the dynamics that underpin good teaching. Good teachers will sequence tasks (see Table) and move the goal posts in such a fashion that students not only become increasing able, but also increasingly independent learners.

MH: I’ve added to your list of modelling, coaching, scaffolding and fading, to include the word **blending**. Blending learning is a new art that underpins good teaching amongst teachers who use both physical and virtual learning environments. The art of blending is to make informed and considered choices as to the activities, tasks and tools you use to structure pathways of learning. Finding an appropriate blend or design is often a process of iterative trial and error informed by reflective practice.²

CT: Making informed choices in this way amounts to a process of practice-based learning, involving the exercise of professional judgement underpinned by an educational rationale. The *Cognitive Apprenticeship* framework is one tool that can be used to help clarify this rationale and hence help to hone the capacity to make appropriate judgements, no matter what combination of physical, virtual or blended setting you work in.

Chris Trevitt and Melissa Highton

¹ Collins, A., Brown, J.S., & A. Holum (Winter, 1991). Cognitive apprenticeship: Making thinking visible. *American Educator*, 6-46.

² MacDonald, J (2005). *Blending Learning and online tutoring: A good practice guide*. Gower: Aldershot.

TUTOR ACTIONS:	DESCRIPTION:	What the teacher does. <i>Examples include:</i>	Opportunities for teachers in a virtual learning environment
<i>Modelling</i>	<p>Teacher performs a task so students can observe</p> <p>Modelling the approach to constructing knowledge typically taken by a researcher in this field</p>	<p>Offer a reasoned argument, perhaps in the form of a lecture. Provide a worked case in point.</p>	<p>Recording lectures to assist active listening, detailed note taking and revision points.</p> <p>Providing detailed close ups, videos of worked examples, experiments and demonstrations.</p> <p>Creating collections of recommended follow-up and background resources or readings before and after lectures, practical work, etc.</p> <p>Model roles and processes of distributed research teams promoting online collaboration and research skills.</p> <p>Gathering feedback from student groups to lecturers highlighting troublesome and challenging areas of content where more explanation is sought.</p>
<i>Coaching</i>	<p>Teacher observes and facilitates while students perform a task</p>	<p>Iteratively listen and then prompt during a tutorial or class teaching session, adjusting your requests according to the responses received.</p>	<p>Inviting online comment linking with lecture arguments, outlines or support materials.</p> <p>Extending and continuing discussion outside a class teaching session.</p> <p>Giving time for reflective writing, opportunity for peer review of written argument in preparation for tutorials.</p> <p>Encouraging students to record and film their performance, skill or practice beforehand to be discussed in detail in a tutorial.</p>
<i>Scaffolding (and fading)</i>	<p>Teacher provides supports to help the student perform the task</p>	<p>Prepare a series of lectures or tutorials on a linked sequence of topics.</p> <p>Set up and run a class discussion, ensuring that your role diminishes with time, as students become more skilled in self-management.</p> <p>Design and implement a curriculum; one intended explicitly to move students from dependency</p>	<p>Using web (hypertext) links to provide non-linear routes through materials; routes that emphasise the structure of the discipline.</p> <p>Design increasingly interactive online tasks, initially emphasising student-tutor interactions, then gradually shifting emphasis to student-student and many-to-many interactions.</p>

		towards independence, as learners.	
<i>Active blending</i>	Ensure that online and face to face elements of the course are well integrated.	Choose appropriate tools and tasks to meet learning and teaching aims.	Creating a secure and safe environment for study, practice and argument.
STUDENT ACTIONS:	DESCRIPTION:	What the student does. Examples include:	Opportunities for students in a virtual learning environment
<i>Attending/attention</i>	Teacher informs, inspires and challenges.	Student takes notes, listens and plans follow up research.	Listening again, checking understanding, asking questions of tutors and peers outside the lecture when questions arise.
<i>Articulating/discussing</i>	Teacher encourages students to verbalise their knowledge and thinking	Write an essay. Contribute comments during a tutorial or class.	Writing individually, reflectively in a blog or research diary. Writing with peers in a wiki or discussion room. 1-1 dialogue online with tutor or supervisor.
<i>Reflecting</i>	Teacher enables students to compare their performance with others	Listen and react to peers' contributions and reports, perhaps in reference to explicit criteria	Peer review and commenting on blog postings, discussion forums. Recording, filming and sharing practice examples.
<i>Exploring/investigating</i>	Teacher invites students to pose and solve their own problems	Engage in peer discussion to identify a valid inquiry or question about X?	Shared workspace online for groups to work together to solve structured problems.
<i>Evidencing/demonstrate</i>	Teacher asks 'show me what you know/can do'.	Writing papers, recording, filming and demonstrating completed work.	Different types of files, text, audio, video, maps, code, datasets, images, simulations and models can be collected and linked together in one place and archived.
<i>Collaborating</i>	Groupwork and collaborative writing.	Project teams, research teams and problem based learning.	Process work, team minutes, agreed actions shared datasets, results and outputs can be gathered with version control and date/time stamps.
<i>Creating/publishing</i>	Bringing together learned knowledge to create a new product	Student writes an essay, project report, paper, performance, artefact or other output.	Online student authored journals. Online submission of individual work for assessment. Online plagiarism checking.

SEQUENCING/ DESIGNING	DESCRIPTION:	<i>Examples include:</i>	
<i>Global before local</i>	Conceptualise the whole task before executing the parts	Map out the scope of your subject matter, and key concepts and issues to be addressed, as well as engage in discussion about details and nuanced arguments.	Consider tools and techniques to manage information feeds, alerts and sources to keep up-to-date.
<i>Increasing complexity</i>	Meaningful tasks gradually increasing in difficulty	With experience successively probe what it really means to 'do history' or 'do mathematics' (or whatever the discipline is that you work in)	Think about what it means to 'do' your subject in distributed research teams across several universities or in companies with global reach. How does online security and intellectual property in a digital age shape your discipline?
<i>Increasing diversity</i>	Practice in a variety of situations to emphasise broad application	Start by asking students to engage with a worked example; then ask them to test out or translate their reasoning in a new context or with a somewhat different issue.	Expand the opportunities to look at worked examples from anywhere in the world and from peers with different viewpoints.

Table: Expanded notion of core concepts that make up the idea of Cognitive Apprenticeship, extended to include consideration of blended learning and Virtual Learning Environments, and some examples relevant to new teachers at Oxford.