Robert O'Toole FHEA, Senior Academic Technologist
ITS Academic Technology Service
academictech@warwick.ac.uk
May 2013

THE UNIVERSITY OF WARWICK

Pedagogical strategies and technologies for peer assessment in Massively Open Online Courses (MOOCs)

Peer assessment has been mooted as an effective strategy for scaling-up higher education and its core values to the proportions envisaged in the idea of *Massively Open Online Courses* (MOOCs). If this is to become reality, what role will academic technologies play? What technologies will we need to provide? What learning design strategies and patterns will those technologies need to enable? This paper aims to explore the potential role of peer assessment in MOOCs, so as to get an informed sense of technology requirements. However, as will be seen, three of the four elements in the title "**pedagogical strategies** and technologies for **peer assessment** in **MOOCs**" vary radically for both practical and philosophical reasons, with significant implications for technology requirements. Worse still, the picture is evolving in non-linear relation to new technologies and MOOC initiatives. An overview of the various trends and differences is useful, but not conclusive. At points in the following text learning design strategies, patterns and technologies are mentioned as possible ways in which peer assessment in MOOCs of various kinds might be implemented. These cases are highlighted in bold so as to stand out. They are also, in some cases, developed into simple *design patterns*, described in Appendix A. It should be noted, however, that they should be read within the wider pedagogical contexts within which they appear in the main body of the text.

Peer-to-peer and the brief history of MOOCs

MOOCs come in two distinct varieties, with some, but not much, blending across these extremes:

- connectivist MOOCs (cMOOCs) following *connectivist* principles, where large numbers of participants self-assemble collections of knowledge, learning activities and curriculum from openly available sources across publicly open platforms;
- extension MOOCs (xMOOCs) where traditional institutions use online platforms to extend access to onsite learning activities, resources and events, which are typically based upon the t*ransmission of content* and *verification of reception* model.

The notion that large numbers of participants (thousands) might gain significant benefits from participating in a "course" originated with the early cMOOCs (in 2008). The connectivist theory behind these experiments contains the assumption that when more people put in more effort and work more intelligently, each person is likely to gain greater benefit. Peer-to-peer practices, including *peer review* and *peer assessment* (subtly different) are an essential aspect of the "intelligent working" essential to a successful cMOOC. It is probably the case that the cMOOC phenomena arose out of large scale peer-to-peer practices enabled by the Web 2.0 revolution in

online platforms. cMOOCs are enabled by the intelligent application of such systems. Their success is also limited by the complexity of the task of operating in a blend of multiple free online Web 2.0 environments. For example, Google Docs may be used to construct a peer review workflow. It can be made to work. But we cannot easily create a simple, intuitive, content-oriented workflow design using it.

The second type, the xMOOCs, may have benefitted from the reputation of cMOOCs for giving value to large numbers of participants. However, they start from a very different perspective. A student comes to an xMOOC expecting much, if not all, of the work of constructing the learning experience to have been done by the course providers. As with traditional university courses, it is not so clear who is ultimately responsible for their success. The notion is that good content, structured in the right way, with appropriate individual and group activities and assessment, running within a good supporting infrastructure, will result in success *if* the students are good enough (whatever that means in the specific context), and *if* they put in the required effort.

At this point, things get tricky for the xMOOC. The traditional model of teaching already struggles to scale beyond a couple of hundred students at a time in lectures, accompanied by much smaller semiars, workshops, and tutorials. New technologies can help in some ways. Online video enlarges the virtual capacity of the lecture theatre to unlimited size. Automated interactive learning activities can, in a few cases, replace some of the necessary human resources, as well as allowing students to use virtual equivalents of instruments and environments that would otherwise be too costly. Improved coordination between tutors, using technologies like the VLE, supports a growth in the size of the teaching team, thus allowing for more students to be supported without a degradation in quality. Small group and one-to-one teaching can be made more efficient using structured and focussed workflows based in a VLE. However, the real crunch point in the scalability challenge is assessment and feedback. Students want to know how well they are doing, both for their own benefit (internal to their learning process) and as a means of illustrating their worth externally to others. Assessment needs to be reliable and relevant. Feedback must be usable.

How then may xMOOCs do reliable and worthwhile assessment and feedback at massive scale? In cases where knowledge may be broken down into small discrete atoms (simple facts, algorithms, procedures, explicit chains of reasoning) computer-graded multiple choice tests are sufficient. Where knowledge is more implicit, embedded in more complex situations (for example using facts in response to a real-world case), intelligence is required to extract evidence of the student's capability from their performance. This is at the very limit of current artificially intelligent systems, capable of dealing with a less-constrained range of responses to a predetermined range of problems. When running this kind of assessment on a massive scale, we either need to provide sufficient expert human iimarkers, or rely on the students to perform **peer-grading, the most primitive type of peer assessment** (see the Peer Grading design

pattern in Appendix A).

When some MOOC providers claim to use peer assessment to supplement machine grading, they are talking about a peer-grading approach. Students are provided with a sufficiently detailed scoring rubric, and instructed in its application. This might involve a degree of interpretation on the part of the student. There are two problems with this approach. Firstly, if in one year a detailed scoring rubric is provided, and we use the same assessment in the following year, the second set of students could use the previous year's rubric, and the experience of the previous students, to optimise their scores. There is a second major flaw in this approach, which occurs as the need for interpretation grows: the necessary level of understanding required of the student assessor also grows. For a student to be expected to assess work at a level at which they are themselves not yet confident is asking a lot. As we move up degrees of sophistication, from simple knowledge testing to assessing competencies in applying knowledge in complex situations, and up to the creation of new knowledge, the problem only gets worse. Assessment then involves interpretation and critical reflection on interpretation. What happens in situations where the purpose of learning is for the student to form their own problems to address, selected from a much less constrained range, and then respond with their own creative and unique solution? How can peer assessment work for non-trivial learning on a massive scale?

A synthesis of cMOOC and xMOOC patterns

The practice of peer assessment might be seen to be the common ground between xMOOCs and cMOOCs. There are established patterns for non-trivial peer assessment in conventional higher education, patterns that might scale-up to the xMOOC context with some adaption. There are also practices used in cMOOCs that could transfer across to work in xMOOCs. The challenge for academic technologies and learning design is to find ways to get the most out of peer assessment design patterns for students on these "massively" scaled courses. As will be demonstrated, the key to getting this right is to realise that in both cMOOCs and xMOOCs non-trivial peer assessment (or peer review) is a craft to be collectively learned, practiced, and reflectively refined. The ability to assess is not something that can be transmitted in a lecture or a text. It grows through reflective practice. We can use technologies and learning designs to create an environment in which that reflective practice is easier. In cMOOCs, as in connectivism more broadly, this craft is thought to be an emergent property of the environment, of its technologies and technological practices, and of collaboration between participants. In traditional academic practice, the craft of assessment is passed on to students through structured learning designs and the input of experienced academics. Problems of scale mean that this might not transfer so easily to xMOOCs. Perhaps a blend of the two approaches might be the solution? Perhaps technology will enable this?

A successful practice in the Warwick Business School offers some indication of how this might

work. Peter Corvi teaches 200 undergraduates in a module on finance. His assessment challenges are built around news reports on financial events, often taken from the FT. This ensures a fresh set of challenges each year. The students are divided into groups of twenty, and then into smaller groups of ten. Each group collectively responds to a news report using the knowledge and skills they have learned in class. This is done in an online forum. At a specific time, forum access is switched around, so that opposite groups can assess each others work, leaving feedback in the forum. This is a popular and effective strategy combining the connectivist virtue of crowd-sourcing judgement and ideas (cMOOC) in a more traditional, teacher-led context. However, as with many such examples in traditional education, peer assessment is a small element of the overall assessment process, which remains the responsibility of the teacher.

Assessment basics

Assessment is the most important part of learning - whether it be teacher assessment, peer assessment or self-assessment. It guides the attention and efforts of students and teachers, as a means for generating formative feedback. It allows students, teachers and their supporters to evaluate the effectiveness of their choices and designs. It is *formative*, in these ways, and *summative* in that it provides a means through which we can evaluate students, teachers, learning designs, facilities and institutions so as to make judgements about their capabilities and characteristics. For assessment to work effectively for both purposes, it must be *reliable* - giving an accurate, error-free evaluation of the student's work against some *clearly articulated* criteria. The criteria should be both *relevant to the curriculum* (whether explicitly or implicitly defined) and *relevant to the student*. The process used should be *transparent* to the student and moderators, and *predictable*. It must be *equitably* applied to each student. Most importantly, students and others should have *confidence* in the system.

Ensuring quality peer assessment

Where the responsibility for doing assessment is passed to students, their capability to meet these requirements should be sufficient to match the significance of the assessment. Peer assessment most usually happens as a formative activity separate from more significant formative and summative assessments. In these cases, it can be a learning process in itself. **Seeing student work from the perspective of the assessor can be a powerfully instructive experience for students.** But they are not well experienced assessors. In other cases they might build upon this experience, becoming better assessors of the quality of student work (and by implication of their own work). Their responsibilities might grow over time. **This progression in peer assessment capability and responsibility might be deliberately structured, with a learning design that includes phases of activity, peer assessment,**

reviewing and reflecting upon the assessor's assessment, learning to be a better assessor, further activity and further assessment. Assessed activities can be included in the course design specifically to provide more opportunities to develop assessment skills. **This is a form of *action learning pedagogy***. The process might be managed more effectively where technology can be used to layer original assessment notes onto the assessed material, with reviews of the assessment points added by others, and then reflections on the reviews being layered on further. A formal workflow could be embedded into the system. This might be undertaken using a "mantle of the expert" pattern (see Appendix A).

The cMOOC approach brings with it concepts of reward and personal status from other online collaborative communities. For example **each student, over time, has opportunities to develop a portfolio of peer assessment work. They might collect these into a personal e-portfolio. When connected to a disciplinary or curricular map it might act to illustrate their competency in specific areas, or their coverage of the whole area**. Good examples of peer review might be rewarded by feedback, from the assessed student, other peers who have reviewed the assessment, or tutors. This might add to the personal profile of the assessing student, perhaps as an element in their e-portfolio. They might become recognised as a skilled assessor. **Various kinds of recognition can be built into technical platforms for managing the peer assessment workflow. A numerical rating could feed into an overall rating for the individual student (like an Ebay merchant rating). Or they might qualify for various community awarded "badges" which they can display on their web pages and cv (a current trend)**. These ratings could contribute to a formal mark. See the design pattern "micro-feedback and rating of a student's contribution" in Appendix A for an idea of how this might work.

There are, however, potential conflicts between the cMOOC approach and the requirements of xMOOCs. Whereas in the cMOOC participants are primarily interested in building the collective capabilities of the whole network, and hence are more likely to use feedback and ratings systems honestly, in xMOOCs participants are aiming to get a good personal grade. There is little to stop them from "gaming" the system through explicit collusion or psychological manipulations. This suggests a remaining role for the authoritative teacher in maintaining academic integrity and fairness.

Exactly what is being assessed?

Further diversity in peer assessment patterns emerge when we look in more detail at the various different purposes that assessment serves. Whether we are using assessment for formative or summative purposes, we might be assessing one of several aspects of a student's capabilities and characteristics, including:

1. the degree to which the student engages with their learning;
2. the student's capability to do some more or less concretely specified actions in the context in which learning takes place (the combination of students, teachers, learning designs, facilities and institution);
3. the student's ability to apply their capabilities in a context outside of that in which they learn (for example, a workplace);
4. the student's ability to apply their capabilities in unknown contexts elsewhere or in the future;
5. the student's meta-capability for developing their capabilities further;
6. the student's meta-capability for helping others to develop their capabilities.

In reality, assessments combine several or even all of these aspects. Well designed and implemented assessment practices are clear about which aspects are being assessed, and what evidence is appropriate in each case. Well designed teaching provides the opportunities necessary for the right kinds of assessment, at the right time, in an appropriate proportion, and with the required effect. Well designed facilities and support services, including academic technologies, make such good learning design and reliable assessment possible and more likely.

MOOCs, constructivism, threshold concepts and peer assessment

The constructivism of Vygotsky is implicit in many teaching strategies. Constructivism encourages us to get a clearer and more granular understanding of what it means to progress in a subject, and how specific students are progressing. It is therefore especially useful in developing and assessing a student's meta-capability to learn (point 5 above): if the tutor and the student can get a clearer picture of progress, they have a better chance of understanding what enables and constrains progress and how it can be improved. The basic idea is that the student progresses through learning, increasing their capabilities in sophistication and scope, by working to make sense of and master problems that are posed accurately to stretch the student just enough - within the "zone of proximal development" - a kind of *goldilocks zone* for effective learning. This condition can be maintained on an *ad hoc* basis in the direct relationship between students and teachers, where the teacher acts as a *more knowledgeable other* (MKO). This is usually an intensive and costly process to maintain (think *Oxbridge tutorial system*). Peer assessment approaches add to this the possibility of students collaboratively assessing each others' progress and identifying new goals to keep progression going. Either a single student takes on the role of MKO, or students pool their efforts to collaboratively perform the role (more of a cMOOC approach). This could remove at least some of the dependency on the teacher, but also risks the vicious circularity of needing competent students to develop competent students. However, if implemented well, **the constructivist approach may help students to develop**

meta-capabilities in helping others to learn (point 6 above), including a capability for peer assessment.

The convergence of constructivist theory with online distance learning at the start of the millenium resulted in the evolution of a more structured approach to designing learning progression. **Courses are typically broken down into discrete components, arranged according to a model of learning progression, building from simple skills and knowledge through more complex activities that depend on the earlier components. By breaking the course down to smaller more simple elements, peer assessment of progress might seem to become easier.** However, this can result in unnecessary over-complication. Technology is usually used to manage the proliferation of tasks, tests and workflows that results (VLEs). This can have a negative effect upon the student experience, creating treadmill-like courses. Knowledge becomes atomized and loses its wider context. A blended approach can address this, combining atomized learning of this kind with activities that require the student to join together and apply knowledge. **Technology can be used to control the students progression to these more complex assessments, ensuring that the required atomic activities are undertaken successfully first**. This might enable better peer assessment of the more complex activities. However, it might also result in student being over-focussed on atomic elements rather than joined up holistic learning. Pedagogy and technologies need to be designed carefully with these issues in mind.

Land and Meyer's notion of *threshold concepts* adds to the difficulty. They demonstrate how student progression is disrupted by especially tricky concepts that require a significant leap in understanding and imagination to master. The art of teaching threshold concepts is to help the student to find personal ways into the concept by providing multiple opportunities connected together by integrative reflection. Assessing progress in attaining threshold concepts is equally difficult. A student working on a difficult threshold concept may need additional encouragement and personal support - getting stuck on something you can't really comprehend saps confidence. Peer assessment of progress with threshold concepts is especially tricky, and requires a degree of empathy with the student being assessed. A student who has got the concept quickly may not easily empathise with one who has struggled. This illustrates **the importance of carefully matching students for peer assessment. However there are many parameters that go into creating a good match. Technology might help with this by providing a means for recording and relating student backgrounds, experiences, progress through learning etc.** Also, **by encouraging students to write about the challenges they face and the successful strategies they have used, peer-support can feed examples and advice into the development of a peer assessment capability**. This might be limited to the students undertaking a course together, or span beyond the course. **The students might even create and share successful learning and assessment activities as**

Open Educational Resources (OERs) for the benefit of students elsewhere or in the future . See the design pattern "students teaching threshold concepts" in Appendix A for an idea of how this might work.

MOOCs, constructionism and peer assessment

Constructionism is different to constructivism, but not necessarily incompatible with it. In the case described above, students create OERs of successful learning and activities as a means of improving learning and peer assessment. A constructionist approach would see the creation of learning activities and assessments by students as central to learning. Constructionism is very much concerned with developing the students meta-capability to learn independently and collaboratively within their discipline and beyond. The students are provided with access to resources with which they can construct a learning experience, including the means by which they can assess their own progress (the effectiveness of their constructions). For example, in creative writing students must combine creative techniques, their own sources of inspiration, and appropriate methods of reflection and criticism. **Constructionism is typically a workshop based pedagogy in which craft is developed through practice, critique and reflection, with attention split between the artefacts being created, the process and environment for creating and improving the artefacts, and the developing capability and character of the student. Forms of peer assessment are by default central to this**. The importance of critical peer assessment in shaping outcomes in these cases means that:

1. a sense of *trust* between the assessed and their assessors is critical to success;
2. students need to feel confident in sharing their work for peer assessment.

The discipline of creative writing is a good source for learning designs that deal effectively with this. For example, it is important that a student has the time, space, resource and constructive support for developing their constructions *before* full peer assessment, but with the context of the peers in mind. They should be able to release their work into the peer assessment space when they are ready. Peer assessment must be honest and for the benefit of the student. Most importantly, the assessment itself needs to be open to critique and improvement. This typically leads to students becoming more confident with assessing their own work, that of their peers, and their wider discipline - and developing a reputation for good judgement. See the design pattern "multiple critical perspectives" in Appendix A for an idea of how this might work.

MOOCs and peer assessment beyond the classroom

Assessments of the third type listed above, where we assess a student's capabilities applied to a context beyond the classroom, are common practice in higher education. This is also the type

of assessment for which peer-to-peer patterns most effectively apply. Furthermore, **MOOCs that bring together many students from many different contexts are rich in potential for this kind of assessment.** At first glance, it might seem to be most appropriate for professional or technical studies, where the student applies classroom based learning to the workplace, and their performance in the workplace is assessed in relation to the classroom curriculum. However, if we replace "the workplace" with the "the archive", "the laboratory", "the dissertation" etc, the same patterns may apply. In professional, technical and academic learning, these approaches allow for a sustained engagement between the student's capabilities and a discipline's realities and complexities. See the design pattern "Applying shared knowledge in diverse contexts" in Appendix A for an example of how this might be done.

From the perspective of the individual student, their are significant benefits and challenges inherent in this approach. Benefits include:

- developing expertise, backed up by more intimate, first-hand experiences, seeing the discipline's challenges from the inside, and getting a better understanding of problems and solutions;
- having opportunities to apply their own individual capabilities and experiences, and to develop their own unique identity and reputation;
- gaining motivation by seeing their learning applied constructively.

Challenges include:

- having to translate classroom based learning into application;
- taking on the "mantle of the expert" when not yet fully qualified;
- getting a reliable sense of progress and quality when variations in context between students make benchmarking more difficult;
- articulating the distinctive characteristics of the non-classroom context and how that affects opportunities and outcomes (for example, variations in the workplaces into which learning is deployed).

In addition, from the perspective of the group of students, additional benefits arise:

- the learning is enriched by experiences shared from a variety of settings;
- access to resources and opportunities from a much wider range of contexts may be shared amongst the group.

Teachers, institutions and disciplines may also be enriched in the same ways. Introducing peer assessment into these situations adds further benefits, for the student being assessed (benefiting from the wider experiences of assessors, and for the assessing student (an

opportunity to apply their knowledge more widely). **The challenge of articulating the distinctive characteristics of the potentially unfamiliar context might however be more critical to success. The learning design could include ways of supporting the student in doing this. They could be required to document and reflect upon working practices, perhaps using a form of scaffolded reflection. This could be recorded into a blog. The narrative and analysis might use images, sound and video as well as text. The emerging dossier could then be peer reviewed, giving formative opportunities for the assessed and the assessors.**

Conclusion

Without a good response to the challenge of doing worthwile peer assessment at massive scale, MOOCs threaten to become either trivial assemblages of content plus multiple choice questions, or resource-eating monsters. Peer assessment is, however, a complex problem, even at more ordinary scales. Significant innovation will be needed to address this. To enable this, we need technical and policy platforms with flexibility to sufficiently support the development, testing and redevelopment of prototypes in live use.

Appendix A - Design patterns for peer assessment

1. Peer grading

This is a straightforward role-transformation, with students acting in the same way as teacher-assessors. The assignment needs to be designed with a grading rubric, so that the student is able to apply the rubric easily, without too much contention. The more straightforward this is, with less chance of contention, the easier it is to scale. The students might need to be given guidance and training in assessment practices, and applying the rubric. Example answers could help to reduce uncertainty. Where contention and subjective judgement is unavoidable, a moderation process might be necessary. This is less scalable. If the assessment process is undertaken by teams of students, their collaborative deliberations might deal act as moderation - but there is no guarantee.

Students may benefit from acting as assessors, gaining a better understanding of what the assessor is looking for, and consequently improving their own performance. This could be positive, or it might lead to a narrowing in the range of student responses.

A MOOC programme might reward students in some way for acting as peer graders.

2. Mantle of the expert

In this pattern, derived from the work of Dorothy Heathcote (1985), we create a more immersive experience in which the student is challenged to take on the responsibility of "the expert" in a given domain. For example, a team of students are designated as expert assessors of assignments in their field. The authors of the work to be assessed have commissioned the experts to produce an assessment, qualified through the application of expert knowledge and practice. They negotiate their expectations with the assessors (e.g. fairness, usable feedback etc). The (official) teacher might act as a regulator, ensuring that institutional and course requirements and standards are met. The task of assessment is a high stakes operation for the assessors, they must make judgements, justify their judgements, and be reflectively-critical about the ways in which they arrive at their conclusions. The aim is to build moderation and reflective deliberation into the process. To a greater extent the assessing team are responsible for ensuring that they work effectively and efficiently, and explore a sufficient range of perspectives to develop an appropriate and transparent sense of quality. At the end of the process, the teacher might provide a regulator's assessment of the performance of the assessors. The students who have been assessed might provide feedback on how they feel their expectations of the process have been met. The reputation of the assessors for good assessment is, hopefully, enhanced. Future peer assessments build upon this learning, with a community of assessment and feedback practice forming.

This approach originated in the drama workshop, where techniques for generating an immersive reality are well practised. The immersive experience could be produced online by creating distinctive collaborative workspaces for the assessment team, perhaps even using Second Life style VR.

3. Micro-feedback and rating of a student's contribution

This pattern is probably more easily achievable in an online environment than in a physical classroom. The idea comes from social networking. When a student contributes to a collective activity, for example a discussion, other students should give feedback on their contribution. This might be a simple "like button" approach, a rating system or written feedback. It might include a mechanism for targeting feedback on a range of aspects or competencies. For example, Jill might give Jack 8/10 for "contributing good resources" in response to a posting from Jack. The aggregated collection of Jack's received feedback might appear on his profile page. The aggregated collection of Jill's given feedback would appear on her profile page.

This approach will fail if the students are too instrumental in their engagement in online activities. For example, if Jill is only interested in resources on Critical Realism, she might miss Jack's

otherwise good contribution on Phenomenology. We might counter this through some mechanism that required Jill to feedback on a broader selection of other students or topics. Each student might also be required to peer review the feedback given by others. To prevent collusion, students might be divided into groups, with exclusive access to their own group's activities. Peer review and meta review might then be carried out blind and anonymously between groups.

4. Students assessing students in teaching threshold concepts

An ability to satisfactorily teach a difficult concept to another student is one of the best tests of understanding. The receiving students assessment of how well they have understood the concept through the teaching is a measure of the quality of the student-teachers' competency with the concept and its communication. In this pattern, students are paired (individually or in groups) so that responsibility for teaching a different concept is given to each of side of the pair. They then have to come up with an appropriate means for teaching the concept - implying that they have to ensure that they themselves understand it. This is a valuable learning experience in itself.

The online environment needs to provide sufficient facilities for inexperienced teachers (the students) to be able to teach effectively. This should go beyond simple patterns, such as slideshows, which may be the default approach for many students.

The matching of pairs and the formation of groups is important. Technological means might help to manage this more effectively.

5. Multiple critical perspectives

Less positivistic, more interpretative subjects require a more sophisticated approach to peer assessment. An experienced academic might be comfortable with assessing work from different, perhaps even opposing, perspectives. They can balance these different views into a fair assessment of the work. Students will usually require much more support to work in this way. Without that support their response might be too one-dimensional.

For example, a group of students each submit a personal response to a work of fiction. The peer assessors are then required to review each paper from multiple perspectives, creating a full response from each perspective. Most importantly, when working in each critical perspective, they need to focus on engaging with the work using that perspective fully, following its approaches, language, values etc. Only once that has been achieved, may an overall judgement be made. Where different perspective contend with each other, for example a work that is excellent structurally but uses language less fluidly, there is a difficult balancing act. This might require moderation by other students or teachers to resolve, but it is a significant point for

intellectual consideration and learning in itself.

6. Peer assessment of applying shared knowledge in diverse contexts

Online distance learning usually brings together students from many different locations and backgrounds, perhaps from countries and cultures that are far apart. In conventional learning, students might spend time working together closely, and then head off into quite different directions - for example undertaking individual research projects.

In this pattern, students share a common starting point in the classroom (physical or online), and apply their learning to different situations. They might be given a specific task to undertake. For example, teachers could be asked to observe a lesson and analyse it from a constructivist perspective. Each student starts from a shared understanding of what it means to analyse a lesson in that way, but the differences in context may result in quite widely varying results. The task is then to reflect upon these differences, and to feed that back to the class. Peer review might focus upon assessing how well the student has applied the theory, how well they have described their varying local context, and how well they explain the impact of the local context on the application of the theory under consideration. This shared starting point, and common task of explaining diverse contexts, gives the assessing student a clearer sense of what and how they are assessing.