**Construit! Online Learning Resource: Feedback from Edinburgh**
*Hamish & Jen, January 2015*

Here we have set down our first thoughts after spending some time looking – first independently, and then discussing together – at the developing online course. First of all, we appreciate that this is as yet an "embryonic" work, as Meurig has described it. We hope however that the observations that we can make will inform the trajectory of the work, and thus to its ultimate form.

**Audience**
The first and most urgent question raised for us is about the target audience for this course. We both buy into the argument that the making of construals can be offered as an approach that can be used across many ages and domains to help structure thinking about the world. But the design of a learning experience needs to begin with a clear idea of the anticipated participants. At the moment, it feels to us – as observers with broad technical competence, though little formal knowledge in computer science – that the resources linked in the course would require high levels of computing domain knowledge and experience to appropriate. Now this may be the current intention, but we feel that this needs to be made clear. In any case, whoever the target audience is, course-specific orientation and introductory resources will need to be added (see observation 1, below).

**A course 'born digital'**
Taking a step back however, we would want to make some more radical suggestions based on our experience of designing for online learners. As you know, in the context of our "manifesto[1]" we have emphasized the notion that the best online learning experiences are "born digital".

> *The possibility of the 'online version' is overstated. The best online courses are born digital.*

What we are looking at at the moment would seem to represent the taking of existing material and working to create just such an online version. We simply do not believe that one can take resources and tasks originally designed and deployed for a classroom setting, and bring them into the online context. These are two quite different sorts of learning "spaces". The objection to the notion of the "version" can obviously be misconstrued. You have a message to convey regardless of medium, but much of the work around this to date has been done is a synchronous, classroom, tutor-supported context. To transform this into an asynchronous, online, distance setting, without the benefit of real-time interaction is a radically different enterprise.

We feel therefore that we would want to suggest a more "green field" approach to this design task. The ideas and insights are to be preserved and transported to the new medium, but few of the resources that have currently been redeployed in the online course as we presently see it would remain.

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[1] https://onlineteachingmanifesto.wordpress.com/

**Tutor support or self-study**
We wondered whether the intention was to produce a course which would be entirely without tutor support. That may not be the case. But if it is, then one should perhaps be thinking of this exercise as really being a matter not of designing a course, but rather of creating a body of resource materials for self-study. This may feel like a minor matter of semantics, and that the notion of "course" is primarily defined by its intellectual content; the curriculum, as it were. However we would want to argue that the course is a matter not only of content, but also of process and dynamics. So the "online version" may be built to "contain" the same body of curricular content, but it will be enacted in totally different ways.

The observations that follow have resulted from our attempts to make our way through the course as presently constructed, but we hope will be relevant to the radical redesign that we would like to propose. We will return at the end of this note to make concrete our suggestions for the next moves.

**Observation 1: introductory materials**
The course seems to lack introduction / orientation / induction. This would, of course, immediately beg questions about our target group for whom the course is being prepared (see 'Audience', above). The introduction that does exist seems to be contextualised with respect to the authors / originators of the Construals idea, rather than attempting to provide a context for the learner. We would guess, for example, that the learner would be less interested (by way of introduction) in the history of the scholarship that lies behind what they are learning, than in some sort of contextualisation of why what they are about to learn will be relevant and useful to them, and what will be asked and expected of them in this learning context. For example, what is the systemic problem with the practice of, and rhetoric surrounding, "programming" that the practice and rhetoric of "making construals" is intended to address. How is this relevant to me as a user of computer technologies, or their products and consequences?

**Observation 2: multiple tools**
We are troubled by the use of multiple tools here. This perhaps relates again to the target audience. If that target was to be teachers who might consider using the system and approach, then having multiple routes to access would clearly be of value. Even though, we would be inclined to suggest that attention is confined to one single instantiation over the learning phase, introducing the additional versions, in terms of widening the opportunities of use, at the end. If, on the other hand, there are operational reasons why more than one instantiation is **needed**, because certain features / capabilities are only available in one version and not in others, then we would suggest that this represents a development problem. But we would still argue that we cut our coat according to our cloth, and work with only one system, confining our attention accordingly to only those features and capabilities that can be satisfactorily introduced to the medium of that version. This would be a starting position, and represent an important simplification of the experience of the learner.

**Observation 3: sessions**
The language of "sessions" is used, but are these really "sessions" or "sections"?  Is there equivalence (in terms of amount of content, and time needed to invest) between the sections?  We do not feel ourselves sufficiently knowledgeable in the scholarly domain to making any meaningful judgments about the progression through the resources and ideas.  We will however, return to a suggestion about how we should proceed, which will make this less of an issue.

**Observation 4: working examples**
We feel that the present working examples are inordinately complex to represent an introductory experience, even for the relatively theoretically sophisticated learner.  This generally returns to the question of "Who is this for?", and also the related question of "What background is assumed?".  The required level of knowledge ramps up very quickly in the course, and we do not think that this could happen without a lot of direct tutorial support.  Many courses on technical topics generate this feeling in participants however.  There is a step change in the rate at which the course is perceived, by the learners, to progress.  One minute everything is obvious ("And so why are you telling me this?") and then the next minute one feels entirely lost.  This is because what is perceived as a linear development of complexity to those who already know the whole story, is not perceived as linear to the novitiate.  Instead of a gradual "ramp" the learner perceives a number of steps.  The notion of "threshold concepts" seems relevant here[2].  While the teacher may perceive that relevant knowledge is being imparted step-by-step, the learner will encounter one of more "sticking points" in their unfolding understanding, transforming the learning experience into something that is far from linear.

Another feature of these examples is that we believe that they confound (at least) two things in the one script.  One is the systems modeling dimension of the example, and the other is the way in which the system can be used to generate graphics to represent the model.  Given the level of conceptual complexity in both of these elements, bringing them together - particularly at the early stages for the learner - would seem to militate against the development of conceptual clarity.  It would be possible, for example, to imagine the construal of a game of noughts-and-crosses which could represent the logic of the game without introducing the added complexity of the drawing of the game grid, and the placing of tokens on the grid.  These would seem to be entirely separate and separable elements, better handled separately.

**Observation 5: local references**
A minor point, but we should eliminate references in these resoucres that are entirely local and internal to the structure of the project; for example "C5".  Perhaps indeed there needs to be a clearer distinction in our own minds between the project, and the products and activities of the project and its members.

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[2] http://en.wikipedia.org/wiki/Threshold_knowledge

**Observation 6: teacherly communications**

There needs to be far more by way of "You will see …" descriptions, attempting to anticipate the misunderstandings that users might have, and preempting them. We should anticipate the "attribution errors" that learners will make. Again, we will take a minor example; "%donald". Why "Donald"? The naïve reader / learner cannot but assume that this word has some significance. But does it actually have any here? We genuinely don't know. We really have to be careful about such referents; especially in the early stages of the course. Is this Donald's room? Is it important that it is Donald's room? Or is the **room** called "Donald"? Are we in "A man with a wooden leg named 'Smith'" territory here? Learners will be searching for meaning, and the must only find it where it really exists. The learning resources must be worded so as to spell out actual significance and, by being explicit, preempt misleading attributions.

On this same example, the screen display begins :
"Imagine a little more intelligent room".
Is that "… little, more intelligent …" or "… little more intelligent …"? .
More intelligent than what? Was there another room being talked about?

**A Proposal**

Our suggestion then is that we take a step back from taking the extant structure and critiquing, refining and expanding it – "fleshing it out" as Meurig put it in his introductory note for us. Rather we suggest that we carry out a total redesign of "Session 1" – the first point of contact for the learner with the material – and expand it to its full and necessary richness. This will allow us to address the complexities of designing for the online and the digital.

This will require us first to identify a target group of learners. We are clearly open to be guided by you here, but our suggestion would be that we consider our target learners to be upper primary / middle school teachers, with no mathematics or computing expertise, but who need to address National Curriculum requirements in the area of computing. We would seek to offer them the "making of construals" approach as a way of addressing this need, and provide them (ultimately) with an introductory programme of study in the use of one of the Eden tools with their children. We suggest this group primarily as it would allow us (JR and HM) to have some hope to grasp what is going on. But we feel too that such a target would confront us with a very challenging task of clarification and simplification which will stand us in good stead for future developments.

If this proposal commends itself, we can then give more thought to the sorts of resources and tasks that we would need to develop. Again, the important thing is to take some small element of this challenge, and see it through to total completion.