Making Construals and Learning

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On 25 Mar 2016, at 9:06am, Meurig Beynon <<u>wmb@dcs.warwick.ac.uk</u>> wrote:

" …. Perhaps I could add here that what our interactions over the last few days have clarified for me is that making construals is not of its essence concerned with learning, or with programming/software development, it has its own identity and role that may or may not contribute to either of those activities. I've been prompted to recognise this partly because [there is a danger of] conflating the idea of a philosophical stance on thinking about computing and what is endorsed by way of software development practice, with very negative implications where evaluating our current practice in 'making construals' is concerned. ….. "

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Hamish (26th March 08.55):

I think that this is very important. We need to flush out just what we are all meaning by our use of terms, and where the links really exist. I would say though that we probably (pragmatically) *have* to identify what we think that the idea of "making construals" contributes to education and learning. I guess that that is what Erasmus wants of us. This may not be "of the essence", but I see no reason to think that identifying that this approach is "good for" need detract from this essence.

Are we saying that "making construals" is a productive way to think about the world in general, and to approach the solution of problems in particular? We might want to claim that there are advantages for *certain* aspects of the world, and in approaching certain sorts of problems. If this *would* be a claim, then we are clearly talking about learning and education. One need not say that this is what "making construals" is *about*, but just that - thought about in this way - the notion has contributions to make to education.

The question about "experience" - as a construct - is interesting, and would appear to be something of a lightning rod for disagreement. In terms of Kolb, I think that this can be usefully "re-packaged" into phrases like "learning by doing" or "active learning". The idea here is not, I think, primarily about the phenomenology of "experience", but rather about the making on connections. Knowledge is constructed and not simply absorbed, or adsorbed (constructivism), and that this is often usefully facilitated by active engagement with objects in the physical world (constructionism). Papert (somewhere) said that we learn by doing, and then reflecting on what we have done. The idea of "reflecting on experience" (Kolb) comes quite naturally from this. Although just what is meant by "experience" could be left quite loosely specified. Crudely, we could talk about "reflecting on what happened", but I think that that is quickly rendered problematic in that it is not "what happened" that is important, but rather what we *believe* to have happened. Which gets pretty close to the phenomenology of experience. I would always return to Papert here. I think that a big part of the "learning through programming" methodology (and it could be "learning through design" or "learning through construction") is that it is a way to make internal mentations open for public scrutiny. Thus one can turn an personal monologue into a public dialogue. And the

"dialogue" may be with oneself, of course. But generally the (educational) idea is that the learner offers a "construction" around which the learner and the tutor can discuss. So the constructivism of Piaget becomes the social constructivism of Vygotsky. I would see a "construal" as just such a "construction". The maker is exposing his or her understanding, in a systematic way, such that it can be talked about. This is an exercise in "showing one's working". I would be tempted to reach now for the word "formal" - but I understand that that would have a particular, and unhelpful connotation. I would therefore try for "structured". A "construal" in general parlance would be an answer to the question "How do you think about this?". If that is structured in some way, one is denied, as far as possible, any recourse to "hand waving" - one has to make ones assumptions explicit. Here the computer is a useful tool, in that it demands that all variables are declared, and in this particular case through the language of ODA.

Is this making any sort of sense? :-)

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Piet (26th March 10.19):

Dear Hamish
Thanks for your very thoughtful reflections on this and it stimulates me to articulate a but further what I think is the addition of constructivism to the ongoing traditions at the moment.
In my view we have the naieve constructivism that just pleads for letting students explore based on their momentary impulses, like in Bruner's discovery learning paradigm. Once we transit to guided discovery the question emerges what type of arguments we have in mind to prune certain parts of the learner's problem space. However also in ultimate discovery learning, its main effect is the learner's impression that (s)he is in control.

Quite differently is the ambition labelled as constructionism as an offspring of Papert's Mind Storms mainly. Though Papert builds upon the learner's sensation of understanding after you built it, the larger community if "intelligent instruction" started to give up "modelling the learner" and dove in the sea of cognitivistic techniques like reflection and metacognitive methods.

It is now our job to (re)conceive the moment of 'aha' in construals. Should we try to elicit these moments ofter, and/or should we make learners utilize its merits, for instance through reconstructing what would escape from awareness otherwise?

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Hamish (26th March 11.54):

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On 26 Mar 2016, at 10:19am, P.A.M.Kommers@utwente.nl wrote:

"It is now our job to (re)conceive the moment of 'aha' in construals. Should we try to elicit these moments ofter, and/or should we make learners utilize its merits, for instance through reconstructing what would escape from awareness otherwise?"

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Yes, that seems like a useful focus. I think that that is a very good definition of what a teacher does - to "elicit moments …". There is a phrase which I like - the "orchestration of experience" which I attribute to Caine, R. N. and G. Caine (1994). "Making connections : teaching and the human brain". I noticed you (Piet) using the word "orchestration" in just this context. This also relates to something that Meurig (and Elizabeth) and I were talking about - the idea of the teacher as "creating events" which, it is hoped in turn, will cause learners to have certain experiences. I think that this is a useful slant on the process of course design - the aim to make things happen. I would always want to think of course design as a matter of designing good tasks for students to engage with.

Alger, B. (2002). The experience designer : learning, networks, and the cybersphere. Tucson, Ariz., Fenestra.

"Awareness" seems like an important word here.

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Meurig (26th March 12.38):

Dear Hamish

Thanks for this most helpful and thoughtful response. It would not be appropriate to try to respond in detail without studying it more carefully (note that this is NOT a deailed response!), but it really demonstrates to my mind that we now have a much better understanding of each other.

The way my email reader now works (which seems to be different from the way it was behaving in the past - though it was always peculiar where emails from yourself are concerned), I don't actually have access to your text in my immdiate experience (!), which makes it harder to clarify what I'm referring to etc. The key point to make is that by saying that 'making construals' is 'not of its essence about ...', I certainly didn't mean that it can't in particular be about learning. Your response spells that out really well in ways that are exactly in line with what I have been aspiring to say from a position of relative ignorance

about theories of learning etc.

So for example (as Elizabeth pointed out in our discussion) it's certainly possible to relate many of the interactions with a construal to something that is remarkably consistent with the Kolb cycle. We probe the solar system construal, reflect on how we'd like to interpret it, make sense of what is happening and if necessary progress by redefining an observable and considering whether the immediate effect of is is in line with expectation ... we can certainly link these 'activities' to Kolb's cycle of concrete experience, reflective observation, abstract conceptualisation, active experimentation. But if you read (e.g.) the very nicely presented account of the Kolb learning cycle at

http://www2.le.ac.uk/departments/gradschool/training/eresources/teaching/theories/kolb

there is no satisfying match between what is described there under the four categories and the activity of interacting with the construal.

What I'm mainly drawing attention to in distancing the activity of making construals from Kolb's cycle is the fact that in interaction with the construal the blend of what we might call "concrete experience, reflective observation, abstract conceptualisation, active experimentation" is such that that classification is obstructive and distracting. Whilst there are undoubtedly interactions in which we learn something from a construal (and there are even 'aha' moments), much interaction with construals is concerned with familiarisation, idle exploration and playful activity where we might quite legitimately say 'I've learnt nothing from that'.

Perhaps my concern is clearer when you consider that Kolb's cycle applies so much more vividly to traditional sw development, where
   - we run the program
   - we reflect on what we observe
   - we make sense of what happened - explaining our observation
   - we make experimental changes to the program and re-run it

The difference here is that these phases are associated with four discrete modes of 'immediate experience' that cannot be conjoined in one environment - each is the province of a different characteristic human agent: e.g. sw user / sw tester / sw designer / sw implementer. Of course, you may argue that the distinction is only one of scale and speed and convenience - that our interactions with a construal are just the same thing as the sw process in microcosm. I don't buy that and would regard the distinction as qualitative, fundamental and profound.

James's focus in his account of pure experience is on the continuity of the stream of consciousness and knowing as the apprehension of connection. James's thesis is that making connections in experience cannot be reduced to a process in which 'conceptualisation' plays a central role. That is the force of **radical** empiricism: 'as reality is created temporally day by day, concepts ... can never fitly supersede perception.... The deeper features of reality are found only in perceptual experience.' (This is why I fear the word 'conceptualisation' is so uncongenial in the context of talking about making construals.) When I suggest that Kolb shows poor understanding of James in his reference

to radical empiricism, I only mean that Kolb appears to be blithely associating a rationalised account of learning with a passage in which James is setting out a completely different agenda. (It is interesting that the word 'learning' doesn't appear in any of the essays on Radical empiricism, and the word 'learn' appears in passing just 3 times.)

Perhaps my point is that making construals is to my mind 'just' a way of engaging with experience in the sense in which James and Dewey use the term - but it's a novel medium (or at least a magnificent enhancement of a commonplace, familiar, everyday medium of living and being) - and allows us to explore making connections in unprecedented ways. We are accustomed in the field of educational technology to say - of course, it's all about 'the learning process' and what we do support the process is just 'technology'. We would do making construals no favours by reducing it to a process - we should rather celebrate its qualities as a playground in which we can better appreciate the force of James's vision for living beyond formal conceptualisation and process, as set out here:

"Experiences come on an enormous scale, and if we take them all together, they come in a chaos of incommensurable relations that we can not straighten out. We have to abstract different groups of them, and handle these separately if we are to talk of them at all. But how the experiences ever get themselves made, or why their characters and relations are just such as appear, we can not begin to understand."

I may have been harsh on Kolb in my previous email - I don't think (in the paragraphs where he cites James in his book) he is properly understanding what James was saying, but it may nevertheless be the case that he is sympathetic to the perspective on learning that is implied.

That's a morning gone. Now to attend to an email from Nick, who has been re-reading William James and has come to the conclusion that the Jamesian perspective on space and time is exactly in line with 'JS-Cadence' (which of course has even now been transformed since you glimpsed it the other day). This may be grounds for revisiting the report we wrote in association with his PhD thesis which you can find (and may be best advised to ignore!) at

http://www.dcs.warwick.ac.uk/report/pdfs/cs-rr-447.pdf

Good to see Piet's follow up to your email also - I think we've made some excellent progress over the last few days.

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Meurig (26th March 18.03):

An important point I failed to make here is that though we might think that experiential learning in the Jamesian idiom has digital support (and I speculated in my email that Kolb does think this), I believe it only has digital support courtesy of adopting the fresh (and distinctive) perspective that we are advocating in making construals. By which I mean that, whilst there are many ways of using the computer (such as spreadsheets, dynamic geometry etc) that make informal use of similar ideas and techniques, these have to be deployed in an appropriate conceptual framework if they are to deliver experiential

learning of this nature. The emphasis on maintaining a connection in experience between interaction with the computer artefact and its referent is critical. This is another reason why the interpretation we put on the Kolb cycle diagram is so pivotal, and the diagram by itself is potentially so misleading.

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Meurig (27th March 17.41):

I too am finding the influence of our discussion of Kolb valuable. I am working on converting a construal I first made for the Emile project (led by Steve in summer 2012) that was intended to reflect experience that someone learning linear algebra would find helpful (possibly essential - but for some it would in some sense be present and tacit). It's proving useful to think of this as connected with Kolb's experiential learning perspective - at any rate as far as 'reflection on concrete experience' is concerned.

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Hamish (27th March 17.44):

On 26 Mar 2016, at 6:03pm, Meurig Beynon <wmb@dcs.warwick.ac.uk> wrote:

"By which I mean that, whilst there are many ways of using the computer (such as spreadsheets, dynamic geometry etc) that make informal use of similar ideas and techniques, these have to be deployed in an appropriate conceptual framework if they are to deliver experiential learning of this nature. "

Yes, I think that is a message that one has to keep setting before people. There is a never ending (so it seems) cycle of people doing things with technology in the educational arena *just because the computer makes it easy* rather than because they are educationally useful or psychologically sound.

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Piet (1st April 11.49):

Being here now in St Peterburg for the IRNet project, I started reading William James' "Essays in Radical Empiricism"; quite impressive contribution to the phenomenological school I might say. I look forward to Steve's reaction to how Kolb's learning cycle can materialize James' view on the role of direct experience in learning. It is quite a relevant- and even urgent topic as current schooling paradigms in Western Europa attribute an increasing role to reflection (relying on introspection and self control) as a main source for metacognition through increased awareness. See the line Wundt, Dewey, Bartlett, Ausubel, Bruner and later for instance Anne Brown who claimed that essentially learning is nothing more at all than metacognitive processes. So now, I think that Hamish' claim becomes opportune, that consciousness cannot simply be abandoned as just an epiphenomenon as there is a wide scale of time windows that allows a learner to consolidate or even aggregate learning experiences that might got lost otherwise. (Please Hamish, correct me). Anyway, a most fruitful stage in our project if you ask me;

reconciling prior notions ("connecting" according to James) might be our important contribution to learning theory here anyway. Btw, I was pleasantly surprised that James refers back to Henri Bergson, which precursor to Husserl's [phenomenological](#) stance absorbed me a lot earlier. Meurig, you might get fascinated by Van den Berg's "[Metabletic Reflections](#)" that extrapolates Jameses claim even further.

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