



What economics can tell us about teaching in higher education

Transcript of recorded interview: Wylie Bradford talking with Agnes Bosanquet (September 2022)

Agnes Bosanquet: It's lovely to chat with you today, Wylie. I have been looking forward to this conversation to learn something about behavioural economics and what it can teach us about higher education. To get started, assuming people know nothing about behavioural economics, what is it?

Wylie Bradford: Well, behavioural economics is an area in economics that has come along in the last few decades. Simply put, I would say economics is about choice. It is about analysing choices people make and what the consequences of those choices are, particularly choices about things like consumption, saving and investment and so on in the economic sphere. In doing that, we have to make certain assumptions to be able to build models and build theories. We have to simplify it. One of the really strong things that is assumed in economic theory about how people make choices is that they do it consistently. Right? That they have a pre-arranged ordering of things, what we call preferences, their likes and dislikes, and how they compare different options – and that they make their choices based on that and they make them in a consistent way. So if they prefer one thing to another, that they will choose that way all the time. They are not flip-flopping around. That they look at all of the aspects of a situation and make the choice that is best for them. This idea of consistency and looking at everything is what we mean when we talk about rationality.

Agnes Bosanquet: That's a sort of traditional view of economics, that people are consistent, well-informed, making choices based on their best interests.

Wylie Bradford: Exactly, that's right. What behavioural economics is about is saying, ok, let's confront that as a set of behavioural assumptions with what we have learned and what we know about human decision making that we get from social psychology, most importantly. We also generate some of these results ourselves. Let's look at what we know about people actually make choices and see what implications that has for economics. The reality is that people don't make choices consistently, and they are subject to various heuristics and biases which means they don't behave the same ways assumed in theory. In a large range of applications that means that the account you get using theory is not going to be right.

We can see lots of business practices that exist, business models and things which are very successful, but if everybody behaved the way it is assumed in textbooks, they wouldn't be. These things work because people make decisions the way they make them. Behavioural economics is really about what happens with economics if we take this convenient set of assumptions that is convenient for modelling, and we bring in a lot more information about how humans actually make decisions. What implications does that have for our understanding of economic behaviour?

Agnes Bosanquet: So what do we know about how people make decisions?

Wylie Bradford: I think one of the key reasons why people don't choose consistently in the way that is assumed is because humans don't tend to make decisions by taking into account all of the information in the situation and choosing the best outcome based on that. Humans are a lot more ... human choices are like 'where do I go from here?' and that's the point about reference points. Humans tend to make changes – and when they have got to make a decision, they tend to look at the transaction or the particular decision that they have to make as a change from a given point. In theory, we are saying they are taking all of the information and distilling it down to the best choice. However, humans don't tend to do that. They tend to think of choices as a movement from one point to another or they evaluate the outcomes of different actions with regard to a reference point. That reference point can be as I said in terms of how they value the outcomes, or it can be how they think about what the outcomes actually mean. It can even be a point in time. That reference point – the key thing is that the reference point is something which is set subjectively. It is going to vary from person to person. It means that people can behave [inconsistently].

When you see somebody behaving apparently inconsistently, that can really mean that in one situation they saw it, they perceived it one way and in the next situation – even though the things they are choosing over appear to be the same from the outside - they have actually seen it a different way. So that subjective idea of how people see transactions and choices they have to make is kind of a really important part of behavioural economics. This idea that humans really ... that reference points play a large role in choice because if you are thinking about your choices as a change, it is a change from what. Alright, if you are thinking about taking everything in all at once, it is not a change, right. It is just like I am evaluating all this. But when you are thinking about it as a change, that is because you are thinking about it as compared to what, compared to a particular kind of reference point.

Agnes Bosanquet: When we were talking about behavioural economics and this idea of choice, one of the phrases, you used the phrase 'choice architecture matters'. Can you tell me a bit about what choice architecture is?

Wylie Bradford: Choice architecture. That's just a fancy way of saying how a choice is actually presented.

Agnes Bosanquet: Ok, so you offer me a choice and the way in which you present it to me can have an influence on my response.

Wylie Bradford: Absolutely. The really kind of strong result would be things like default options. If I give you, if I ask you to choose between two things. Do you want (a) or do you want (b)? Right, that's one way of presenting the choice. If I present it to you that, again choosing between (a) and (b) but (a) is already selected. So you know go on a website you have to click on the thing but one of them is already filled in so that is the default. That is a different choice architecture because instead of saying 'Here's (a) and here's (b). Which one do you want?' It's really saying 'it's (a) but do you want to change to (b)?' And people do not see those two things as being equivalent, whereas again what I call a theoretical agent, that wouldn't work for them. They are making that choice completely holistically whereas for humans the way you present, that choice architecture of saying 'here is the default option', what that means is that a significant number of people are not going to deviate from the default option.

The way in which you present a choice can have a material impact on the way in which people actually make choices. That's what we mean. And that's probably the ultimate

message of behavioural economics really – that choice architecture matters because all choices for humans are in context. They are not the context-free, 'I am taking into account every scrap of information and putting it into a formula' like in theory. Humans make choices in context and the choice architecture is one of the things that defines that context, the way they are presented.

Agnes Bosanquet: I wonder if we can bring in an example of students in the university context. Can you talk through some of these ideas if we are talking about an example of whether a student comes to class or whether they listen to the lecture recording later on. What might be going on in making a choice like that?

Wylie Bradford: There's a number of things. One is this idea of what we call framing. Framing is wrapped up a lot with what we call loss aversion. Loss aversion is the idea that humans put a lot more weight on negative outcomes than they do positive outcomes, in that sense that they would be prepared to do more to avoid a given loss than they would be to get the equivalent gain. That's where the reference point thing comes in. It really matters then whether or not people see these things in a loss frame, that is they see it as a loss relative to a reference point or do they see it as a gain. The classic thing we use all the time in normal language which really encapsulates it very well is the whole glass half empty or the glass half full. The paradigmatic example of framing. The person who sees the glass as half full, their reference point is the empty glass. That's a positive thing for them. The person who sees it as half empty, their reference point is the glass being full. So that setting of the reference point can determine the way they look at outcomes and the way in which they behave.

That interacts with loss aversion. One of the other things we see is that where people see a situation as a loss, so they've set a reference point and they see the outcome as being a loss from that, they tend to behave in a more risky fashion. They tend to take gambles, whereas if they see it as being kind of in a gain frame – they see it as their reference point is lower and they are looking at the outcome as being an improvement from that – then they tend to be more risk averse. Again if I am going to use proverbs and so on, right, we say a bird in the hand is worth two in the bush. Yes, that's an example of you should be risk averse. Take the certain outcome, don't gamble it when you've got something to gain. Whereas when you are in a loss frame it's like: you might as well be hung for a sheep as a lamb. So, for example, this kind of thing is a big part of gambling behaviour, why we have people who are losing at gambling. What do you see them do? Do you see them stop and walk away from the table? I know gambling is addictive behaviour. But do they stop and walk away from the table? No, quite often they start doubling down. They are taking on more risk. Why? Because when they see the outcome as being a kind of loss, then they are willing to take a risk of even more losses if they can get a gain. Whereas when people see things as a gain frame then they tend to behave more conservatively to try and protect their gain.

Agnes Bosanquet: How does that apply to a student making a decision?

Wylie Bradford: I would say, one of my kind of theories, I mean covid has been an interruption but we have had a problem with engagement and we have got an increasing problem now with FAs, people just kind of not engaging at all and then ending up as an FA, and the FA numbers [are higher].

Agnes Bosanquet: For context for listeners, FA is the Failed Absent where a student fails because they don't submit a task at all.

Wylie Bradford: Or in those units that have a final exam, they don't even turn up for the final exam. One way we can think about that is that over time, in the past say when I was an undergraduate and so on all those years ago, you had to go to university, you had to engage with things on the campus because that was the only way you got your information. The only real way to succeed at the task was to actually go in, and so going in and being engaged with university work was kind of in a gain frame. By doing that you are going to improve your chances to succeed. You know, obviously there have always been people who ... again these things don't apply to every single person, they are broad trends. Whereas I think over time with the development of things like recording and streaming and so on, universities have been a little bit amiss in the messaging which I think prioritises students and 'you don't have to come, you don't have to come into campus.' The problem with that is as you start to put that message out, it starts to make engaging with university work, using your time to engage with university work, into now a loss frame. Right, it is really emphasising you don't have to come because you can watch recordings. Spending time on university stuff is now really sacrificing your leisure time and all the other things you want to do. If you make that into a loss frame, it is not surprising based on behavioural economics and what we call prospect theory that people start to behave in a more risky fashion. What is risky? Low engagement.

Agnes Bosanquet: So they will take the chance of not coming and might pass anyway.

Wylie Bradford: Exactly right. I will be less engaged and then by doing so increase the probability of not succeeding. But they can get themselves into a point where it is not completely hopeless, they are underwater, so they don't even bother turning up. It's like the way in which we as universities have framed the experience of being a student I think over time has shifted from it being a gain frame to a loss frame and I think that does promote much more risky behaviour which ends up in greater FAs and so on.

Agnes Bosanquet: Does it get a little but more complicated if I have attached a gain frame to something else? So I could come to university or I could go to my job and earn money and just listen to the recording later. Are we balancing frames that way?

Wylie Bradford: Yes. Of course. I think that's true. We also have to say there's plenty of actual kind of normal economics involved as well. If people have the option of working then they've got to make a decision about you know what they get out of working, which they know – they get paid – and what they are going to get out of this investment in time in the university. There's plenty of that normal trade-off stuff going on, but on top of that it is just about their attitude towards different strategies ... They are less likely to play it safe if they view the whole thing as, you know, [a loss]. If we make the university experience, spending your time at university the half empty glass then they are more likely to kind of try to roll the dice to kind of minimise the effort that is required, and of course they end up miscalculating that. Whereas if the glass is half full you are going to take the safer option of putting the work into it. I think collectively I would argue that the engagement problem that we have can be attributed I think to not great messaging as we introduced all these technologies and so on. I think it has shifted that frame for a significant number of students and so we shouldn't be surprised that they behave in a more risk seeking way which is not good for them unfortunately.

Agnes Bosanquet: One of the things we talked about is the way in which you have designed your assessment with things like this in mind. It is your teaching and assessment. So what do you do to try to reframe your students' approach so that they

are looking to coming to class as a gain?

Wylie Bradford: Well there are various ways you can do it. One of the things is that I kind of make them, not by the trite way of having participation marks or even attendance marks. I will say, ok, we will have a lectorial and they have got the material in advance. We will have a lectorial and in the lectorial we are doing all these discussions of some practical application and then they have to do like a reflective blog each week. So my behavioural economics unit, they have to do a reflective blog on what was the most important idea in that topic and why. They do that one every week. It's short but they can't do the blog unless they go to the lectorial because it is a reflection on the group discussions and it is an interactive experience. And with reflective assessment like that you are also kind of I think that there is more value... A lot of students, particularly in my area, in the business school area, are a bit thrown off at the beginning with an assessment that is asking 'what do you think?' about something. I think that imbues that with more value, the fact that they ultimately get to talk about what they think, that they are not just reciting back content. And so I think also helps to increase motivation and make it seem less, make it seem less of 'this is a loss of my time'. Because in a sense they are creating something, they are creating their own thing and I think you can subtly reframe the task – without saying it out loud – but you can that do that because it is a different thing. It's not like, 'great, I've got to spend time writing down a summary of something' because that is explicitly what I don't want them to do. It's like 'I am sitting down and I get to write about what I think' and I think students do find that kind of rewarding. It does change the nature of the decision to put time into it.

Agnes Bosanquet: So one of the other things we talked about was a concept I hadn't heard about before as a non-economist – the idea of hyperbolic discounting. Can you explain what that is and then we can look at some examples of how you make that work with students?

Wylie Bradford: Yeah. Well, look I mean when we talk about discounting all we are doing is saying how do I compare the future to the present? Ok. I've got to decide to allocate resources like time. I've got to spend some time doing something now and it will pay off at some point in the future.

Agnes Bosanquet: So when I get my degree?

Wylie Bradford: Well yeah that's right. I've got to do something now and then the pay-off happens down the line in time. I've got to decide is it worth doing that and the way ... In deciding whether it is worth doing that, I've really got to answer 'well, how do I value the future relative to the present?' Now somebody who values the present very highly – technically, we say they have a high discount rate, but what that means is they really prefer outcomes in the present to outcomes in the future. What that would mean is that they would treat a pay-off, a given pay-off in the future, as having a much lower present value. It would be equivalent to a much smaller pay-off in the present. Somebody who has a lower discount rate, say someone who has a zero, somebody who doesn't discount at all, they would treat the pay-off in the future as exactly the same as the pay-off in the present. So if they have to incur a cost of \$100 now to get a pay-off of \$100 in the future, they would. Whereas someone [else], as your discount rate comes up, as you put more weight on the present rather than the future, the amount you would be willing to sacrifice now to get that \$100 in the future is going down quite quickly. When we talk about discounting we just mean how do people compare future values to present values in order to make a decision. Remember you

only ever make decisions in the present, you see.

Agnes Bosanquet: So it a decision about whether I choose an immediate reward now or whether I delay that gratification and value the future reward as highly?

Wylie Bradford: Yes but it is also, for example, very relevant to things like climate change. How much am I prepared to sacrifice now to avoid a large cost in the future? So, again, the higher my discount rate, the more I privilege the present, the less I am willing to sacrifice now in order to avoid that cost in the future. Whereas if I have a lower discount rate... That is why we have all these arguments about it. We should really think of this in low discount rate terms because you should be saying, look, the costs in the future from climate change are going to be quite significant. We should be prepared to allocate a lot of resources now. If you are arguing that we shouldn't allocate a large amount of resources now, you are really implicitly using a higher discount rate. You are writing off those future costs not being as significant. It's all about that.

To get to the hyperbolic point. Again, in theory, we assume that people do this consistently, that is that they have one discount rate. When I evaluate, you know, if I am thinking about carrying out an action now and it will have a pay-off in the future, I apply my discount rate to that pay-off in the future and get its present value. I compare it to how much I might have to, I am expected to kind of sacrifice now and I decide whether it is worth it or not. That judgement that I make never changes because I always trade off future and present at the same rate. I have one discount rate, right, technically. Whereas – and here is where we get back to reference points for humans. Humans use where they are now and, if you like, the time until this thing as the reference point and our discount rate changes. As we get closer to a future event, the discount rate that we use generally gets higher and higher. This is why, for example, why you have a snooze button on your alarm clock. Ok, I'm going to bed, I am going to set my alarm for 6. I have made the judgement that it is worth it for me to get up at 6. The trouble is that's tonight me. Tomorrow morning me, when that alarm goes off, I've suddenly now thinking of those benefits of getting up which are quite close in time, and the benefits of staying in bed and I might say that the benefits of staying in bed now seem much greater. In other words, I am using a much higher discount rate now than I did last night and that is when I hit the snooze button and I don't get up at 6 o'clock.

Agnes Bosanquet: So an example for a student might be when they have an assessment task due. It's due next week, say it is due on Friday next week. I will think about it on Monday. And I get to Monday and I think, oh, I was going to start doing it this week. I was going to start doing it today. But my discount rate has changed because now Friday seems closer and right now on Monday I don't want to do it, so I say, ok, I will do it on Wednesday. And that keeps going.

Wylie Bradford: Exactly. Exactly right. And this is what explains procrastination. Procrastination is a kind of time inconsistency that is a plan to do something. Exactly right, I plan to work on this essay on Monday because it is due on Friday. You know, as you said, when you are in this week you are saying that, ok, you make that assessment. Right, fine. But the closer you get to Friday the more painful it appears to give up your time to work on the [essay]. In other words, the way you envisage how much it was worth doing that last week no longer applies. You are applying a higher discount rate. Now it doesn't seem as worth it. That's why you end up [procrastinating]. We all do that. That's procrastination and that's why, you know, when you look at online submission of things when they are due at midnight and you look at submission

times and it is like an ebay auction all clustered around midnight with people submitting. Every single [assessment]. These blogs which are open until midnight, I laugh because every time I pull them up to go do marking and see the last ones, there is always this clustering at 11.59pm, the absolute last minute. Humans are not good at planning over time because we don't tend to have a single discount rate. We are always using a reference point of where we are now compared with where this thing is and it changes the way we do evaluations. Which is why we have, as I said to you the other day, why we have compulsory superannuation. If we left it to people just to make saving decisions – not everyone but too many people would fall victim to this. They intend to save, however, you know, when the time comes to make the sacrifice of saving it doesn't seem as good as spending and so they don't end up saving. And they'll get to the end of their life and they will have no savings. So hyperbolic discounting is that idea that humans do not evaluate the future in a consistent way. It changes the closer they get to a given event in the future in a way that making planning, holding plans consistently, it makes it difficult.

Agnes Bosanquet: So you have talked a bit about the reflective assessment and having students do something every week. Can you tell me a little bit more about how you design assessment in line with these principles of behavioural economics?

Wylie Bradford: Well ok the progressive assessment and this is a big issue which we grapple with a lot. There are questions about whether we have too much assessment and so on. I mean one of the reasons I use those weekly blogs is precisely to cut across this time inconsistency hyperbolic discounting thing. I mean that's one of the benefits of progressive assessment, is that you're not leaving students to make big decisions about how to allocate their time over long stretches of time. If you have a unit with two assignments and then a 60% final exam, well really there are three points where students have to do something, and ideally you are working consistently all the way through. Even if they intend to do it, because ... this inconsistency isn't a kind of character failing. It's simply...

Agnes Bosanquet: Being a human.

Wylie Bradford: Exactly. A consequence of moving through time. If you leave that to them, too many of them are not going to do anything until the last minute on any of those things. They won't perform as well. One of the things that a progressive assessment regime does is it takes away that ability to choose how to allocate their time. These are small slices. They still procrastinate. As I said, even within a week, they still procrastinate but what you are doing is not leaving them out there to procrastinate and build up this kind of impassable barrier of not having done enough. You keep them engaged and you cut through that problem of being inconsistent about planning out their effort. Or, if you like, you constrict it to a very small interval.

These are things that have to be taken into account when we are thinking about the question of how much assessment. Not only the distinction between assessment for learning and assessment of learning but also this question of the students' choice architecture matters. The students' effort intensity and the way they apply it over time is not independent - our students are not these theoretical agents – it is not independent of the way in which you present the options to them. And students recognise that. People are aware that they have this kind of planning problem and students say that to me in feedback. They say about the blogs: it was maybe kind of annoying but it really kept me engaged and made sure you were doing things and staying engaged with the material and so on, right. That's one way.

Also getting away from exams, right. Leaving aside the issue of exams as an assessment tool anyway, but I think there's a problem with having, particularly say, a 60% final exam because it is really almost signalling to students that's when your effort comes in. It is almost an invitation to go, just wait to the end and just try and cram. And of course (a) that's not very effective and (b) even the students who are intending to do that, once again hyperbolic discounting can undercut that. You will get a lot more students who will not do anything because ok there is this big exam at the end. Like a big lighthouse. Except the lighthouse is not drawing people in, it's warning people away [laughs]. You know, like a moth to a flame. There's a big exam at the end, ok well that's where I've got to focus. I will get around that. Yeah, I've got to focus on that when I get to that. The problem is too many of them, right, they won't not do that. Again the way in which we design assessment and the timing of assessments has important implications for how students are going to be able to deal with something like the implications of hyperbolic discounting. Again, we all do it. Everyone does.

Agnes Bosanquet: So you are not immune to it just because you know about it?

Wylie Bradford: No, God, no. I mean, students are always really disappointed to find out [I am not immune]. I'll use personal anecdotes each time we are discussing these things to tell them about, like I said, when we bought our first flat and we paid exactly the maximum price we could possibly pay. And we went home and we had champagne and we couldn't even be bothered popping the cork because you set a reference point. In that sense you are hoping to be able to kind of get it for cheaper than that but then you end up not. It almost feels like you lost something when in fact you got what you wanted. No, and they're always somewhat disappointed that I am somehow not immune. And I say to them, these are human things. That's the thing. We have got to get away from saying people are irrational. Well, no, this is what people are like. That's how humans behave. You know. That's why we have got to be cognisant of that when we are doing things like setting assessment up so we don't push students into the path of these behaviours that are ultimately not going to be in their best interests.

Agnes Bosanquet: So you've talked about a couple of experiments with assessment where you gave that example of what you have done with quizzes and how you have tried to set students up with the idea that they start with 100%. Can you tell me a bit more about those?

Wylie Bradford: Well ok. The grading thing comes from yeah something we do in my Behavioural Economics unit. When we are talking about loss aversion we look at this paper where they did a field experiment in schools in Chicago where they tried for one group of teachers they did the normal thing with performance-related bonuses. People would get them at the end of they met certain criteria. With the other group, they gave them the bonus in advance and said, well, if you don't meet [the criteria] ... We'll measure your performance at the end and if you fall short of these criteria, then you will have to give the money back.

Now of course, ultimately, the net things are exactly the same, but that had a significant effect on the results that the teachers got. They were using things like test scores and so on, but you know whatever you agree to measure is productivity in that case for both groups. There was an increase in productivity when the bonuses are paid upfront. The reason is that it's loss aversion. It's a lot worse to have to give the money back than not getting it. You know if you are kind of thinking about it .. if you are paid a \$4500 bonus, at the end that would make you feel a certain way. But if you had \$5000

to start and you had to give \$500 back so you are still end up with \$4500 a bonus, that doesn't feel like that at all. That feels much worse.

We were talking about this. I used to get a discussion about that – well, what if we did that with marks in the unit? So we discussed that and talked about it and after a couple of years of discussing it, I thought well, instead of just discussing it, why don't I just do it. That's what I do. I say when I marks things, ok, they start on 100. Everyone, their final mark is 100. Every time I mark something I just give them letter grades for their assessment but I reduce that final mark by how many marks they notionally lost. So the first thing is out of 20 and they got 16, well now the highest mark they can get in 96. It is always what is the highest possible mark you can get from this point if you get 100% in everything. What is the highest possible mark you can get? See that's coming down and it is using that loss aversion as a way of trying to promote more effort and more engagement. And they tend to say it works. They do say it is stress-inducing. It is loss aversion. It is something you are averse to. But they do tend to report that it kind of works.

Agnes Bosanquet: And it teaches the concept at the same time.

Wylie Bradford: Yeah exactly. It is a nice moment when I am discussing that paper and then someone will suddenly go, wait a second, is that why you do this? Yes, that is exactly why I do it. There was that. The thing with those kind of quizzes I tried that time gets to another kind of framing issue which is what we call medium maximisation. And that is that people will behave differently if you ask people to say expend effort, do a task, do work and they will be rewarded with a certain object. Instead of doing that, you say do a task and I will reward with points and you can trade the points in for things, people tend to be much more strongly motivated by that. That's why things like loyalty cards, loyalty points, all those kind of things, frequent flyers, all those kind of things are quite powerful. People are very prepared to [spend] because amassing the points becomes an end in itself. That's why people will spend more money than they need to rack up points on things like credit cards and cash it in on something. Well, you could have actually bought that thing outright for less than you spent to generate all those points. But that medium, putting a medium in between really seems to have like a big impact on people.

It's part of the reason also why I use only report letter grades is again there is a question of whether marks ... It gives you a kind of medium maximisation thing. If we are actually about learning then people can become obsessed with the mark they get and being obsessed with the actual number as opposed to how well they do and what they have learnt could be an example of medium maximisation. I did lean on it explicitly. I got this idea from a paper so I didn't invent it. It's what is called 10 thousand point ratings. So you represent, instead of the unit being out of 100 marks, you represent it as 10 thousand points. And I had these quizzes, little content quizzes - it was in my Environmental Economics unit – each week just they add up to 10%. Little live quizzes thing I would do just to test them to make sure they are going through the content.

Agnes Bosanquet: So you've got 10 and they are worth 10%.

Wylie Bradford: So they are each worth 1.

Agnes Bosanquet: Instead of saying they are 1%...

Wylie Bradford: I would say they are 100 points which is 1% of 10 thousand because 100 points sounds a lot more significant than 1%.

Agnes Bosanquet: Sounds like it is worth doing the quiz.

Wylie Bradford: Sounds like it is worth doing, right. And so that way you set everything up and that way. You can't, it's difficult, it gets undercut with our system you know you have to put percentage weights in things like the CMS [curriculum management system]. Ideally you wouldn't have that. You'd say, here's all the tasks and here's how many points they are worth. But that makes that is a difference again, that kind of reference point framing thing. It's why for example things will be described as 90% fat free rather than having 10% fat content. Same thing but it doesn't sound like the same thing, alright. And a 1% quiz and 100 point quiz, they are the same thing with 10 thousand overall but it doesn't sound like it is. So that ideas of using kind of medium maximisation to try and spur people to have a greater incentive to put effort into it is also something I do.

Agnes Bosanquet: Thank you Wylie. Is there anything you would like to add to our discussion?

Wylie Bradford: Yes, there is one thing. I have used this argument I have used this argument before. There is a couple of things. One on that time inconsistency thing – it was always why I argued, you know, when these things would come up back in the day, you remember, when everyone was going on about MOOCs. MOOCs are going to kind of eat us alive. I said, they're not, because people don't complete MOOCs, and they don't complete MOOCs exactly because of hyperbolic discounting, right. So the existence of, the existence of a like structured university program is kind of an example of what we call choosing not to choose. People are aware of their own weakness. Just like, anyone can go and self-educate on anything, right. The results, the materials have always been there, they are easier to get now on the internet. But you can go and teach yourself anything. But who would actually stick to doing that? No one. Not enough people. And so, the same thing with all these MOOCs. Yeah but people don't finish MOOCs and they don't because of that hyperbolic discounting. We also... The structured university program that someone deliberately enrolls in and then they have to do certain things is a way of getting away... It's what we call choosing not to choose, You are insulating yourself from these effects. By the way, this is something that humans have always recognised. In *The Odyssey*, Odysseus gets his crew to lash him to the mast so he won't respond to the sirens. This is something we have always known about. That's why we have things like, back in the day you had things like kind of Christmas Clubs, you know. Again you could save up all year and then buy Christmas presents but if you are not certain you are going to be able to stick to that, you have something like the Christmas Club which turns it into little kind of...

Agnes Bosanquet: Yep, I remember my parents had the Christmas Club.

Wylie Bradford: Exactly right, it's a self-control mechanism. I think there's that. We should think about university, traditional university degrees, as that kind of self-control mechanism when we are thinking about the alternatives like MOOCs and so on, which were you know, I am happy to say that I said at the time we didn't have to worry about them. And we don't you know. The other thing, there was another kind of reference point thing which I didn't mention to you the other day but which I thought about. It is what we call anchoring. And that deals with, again it is like a reference point phenomenon. How do people estimate something, you know, based... If they have to

estimate something like a quantity, they are very sensitive to initial information. Very sensitive. Even if that information doesn't mean anything. The classic experiment from Kahneman and Tversky and Daniel is they have a chocolate wheel and they roll up numbers, and they give people the number. Here's the number you rolled in the chocolate wheel. Then they say, ok, how many African nations are there in the UN do you think? And people would have a guess, and they would go around and say 'you are too high, you are too low'. What do you think? Knowing you are too high or too low, what do you think the number of African nations in the UN is, and what you found is that people's guesses were highly correlated with that random number they got off the chocolate wheel [laughs]. It doesn't mean anything but if they have the number 50 [in mind] and they are told you are wrong, you are too high, they don't go back to the drawing board and try to work it out. They go, 50, I will just [say] 45. I will adjust down from that. This comes up a lot. Humans are very susceptible to that.

That's why I'll use this argument I did in Senate back in the day, when people wanted to have, say we have got to give everyone practice exams with answers. I said, no, there's a problem with that. You not going to get sufficient adjustment away from that. That is going to be very much an anchoring phenomenon. I've had that experience where students come to you with a past paper, and they want to know the answers to these questions. And I say, this paper you've got is several years old and we don't even do that topic any more in this unit. They go, ok, but what is answer. Because the problem is that is you are giving them a practice exam with answers, that becomes an anchor that they insufficiently adjust away from in preparation for the final exam. That's when you've got this problem. If you make the final exam very much like the final exam you are giving them then you are almost coaching them for the exam. If you make it different, a lot of students are going to do really badly. Why? Because they have anchored on the exam that you gave them. And so, yeah, I think when we are talking about stuff like should we have to give practice exams with answers to students, ok, it's one thing to kind of ... Ok for our textbook agents, it might be providing them with information they can use to make a very reasonable assessment of what they might have to do. But for many human students if you are giving them that it just becomes something they are fixated on and they won't adjust away their expectations from that very far at all. Again, that interferes with their actual exam preparation. So that kind of thing of anchoring is important, has an important role to play when we are thinking about how you handle assessments like exams.

Agnes Bosanquet: In a nutshell, would it be fair to say that the message of behavioural economics for teaching in higher education is that students will be inconsistent and you should design with that in mind?

Wylie Bradford: Well you should realise the way in which you set the assessment up will affect the way in which they allocate effort and so don't think their effort is going to flow forth like liquid from a pipe at a constant volume. No. Choice architecture matters. The way in which you the way in which you design the assessment in terms of how timely it is, how much they have to do, the kind of things they have to do, that will impact how much effort they actually put in. And so ignoring that means you won't necessarily, if you ignore that, you won't necessarily achieve the outcomes that you want. Right. That is the kind of thing I try to say a lot. It also goes down to like why not, you know, release all exam results. You know, why? Because you have a point in time where someone does the exam then they wait a month or more before they find out their final results and they don't know anything about that exam, you are setting them up to set all kinds of reference points, right. And then they might be disappointed, with loss aversion, they might be very disappointed. Why do you necessarily get a lot of

students appealing their grade once they find their exam results? Because they are disappointed. Why are they disappointed? Because they had all this time to create reference points which may or may not be realistic, whereas if you actually gave them all the information at the start, they don't do that. They know how they have performed.

I did that with a 1600 student first year unit. I spent a lot of time making the sure the results were ready and I put them out before they are even released. I said here is what the exam results are. I put them on GradeBook. Yeah. The appeals evaporate. I think a lot of appeals are generated by disappointment. Why is there disappointment? Because we have allowed this time with no information. They set their own reference points then when the results come out, it falls short of that. Because of loss aversion they really experience that negatively. So they run straight off to do an appeal, whereas if you give them the information straight up they are not doing that. So you know I think there is generally the idea that the way that you set up assessment and the way that you design what you do will impact how people set those reference points. How they set those reference points will affect not only how they choose but how they feel about outcomes. These are all things you want to take into account if you want to succeed with the goals you have set yourself in setting up and delivering the unit. So that's the message I would say.

Agnes Bosanquet: Thank you very much, Wylie. I really enjoyed that.

Wylie Bradford: Thank you.