INTRODUCTION

Regulatory interventions are predicated on the assumption that decision-makers can exercise control. In the 'depleted state' (Lodge, 2013), characterised by uncertainty and systemic risks to the economy, policy-makers are under pressure to 'do something' and intervene. But regulatory policy cannot work if decision-makers believe they are controlling outcomes, whilst in reality the outcome is outside their control or even random. If chance and control are not correctly separated in processes of cognition and decision-making, the probability of regulatory failure increases. In particular, when there is a bias leading to the mistake of reading $n+k$ situations as 'control' when only n are controllable and k are not, there will be inefficiency in taking and attributing responsibility for the outcomes. This bias has been well-documented among ordinary members of the public in the literature on cognition and learning. However the world of public policy adds its own pressures for intervening even when chance prevails over the possibility to control the outcome. The complex factors at work in the politics of taking responsibility and avoiding blame (Hood, 2010) are additional structural features that influence the choice' between 'interventions' and 'do nothing'.

Risk and regulation have become prominent topics in public sector training. Tools for ex-ante appraisal are taught to public managers across the world, with the expectation that this will improve regulatory choice. The tools include regulatory impact assessment (RIA, for an introduction to the features and dimensions of this tool see Dunlop and Radaelli, 2015a) and various forms of risk analysis.

And yet, substantive analysis is only one part of the story. As Schön (1983) provocatively argued thirty years ago, becoming an effective professional demands a move beyond technical rationality toward reflection. This article explores how public administrator students can be encouraged to think reflectively and reflexively about the limits of control. Reflection concerns human cognition and the ways in which we subject our own thoughts and actions – possible and enacted – to consideration. Reflexivity takes us deeper into the self and addresses the emotional dimension of

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reflection – what is it that public administrators as sentient beings with values, feelings and boundaries bring to decision-making? We provide an example of how an experimental approach can open discussion about the limits of human control in regulation. Specifically, we adapt two of Ellen Langer's (1975) experiments on the 'illusion of control' experienced by individuals to introduce the concept of 'regulatory humility' and help our practitioner students engage autonomously with this concept and increase their awareness.

The article is structured as follows. First, we introduce our approach and outline how in-class experiments can stimulate reflection. Second, we outline the concept of 'regulatory humility'. Third, we outline the learning aims of in-class experiments. Fourth, we illustrate the protocol of our pedagogical experiment: design, administration, and results. We then move to the discussion of the findings, including our own instructors' field-notes of how participants reacted to the experiment, before we briefly conclude with some more general lessons for teaching all students of political science and practical implications.

1. THE APPROACH: USING EXPERIMENTS TO GENERATE REFLECTION

We introduced the concept of regulatory humility to two cohorts of Masters in Public Administration (MPA) students at the University of Exeter in successive years. The experiment complemented a lecture and audio-visual presentation on regulatory reform.

Why use an experiment in an MPA teaching programme? In a recent article, Rowe (2013) uses insights from Asch's (1956) classic experiments on group conformity to explore the behavioural dynamics of small group teaching. The experiment provides an opportunity for the instructor to critically reflect about the students. Moreover, it offers a fruitful way to explore themes relevant to public administrators that can be difficult to broach using, or are absent from, the traditional public administration literature. In particular, the discussion of such experiments offers a springboard for

the discussion of the sensitive matter of individual's cognitive biases and how they impact on professional practice. The contention that individuals suffer from over-confidence about the control they can exert over outcomes, and that such illusions may contribute to regulatory failure, is clearly one such sensitive topic.

The potential of experiments as teaching resources is not limited to their use as case studies for students to observe. By adapting experiments to suit the specific classroom context and topic being explored, the experiment itself becomes a pedagogic tool. What purposes does administering an experiment serve? Specifically, what parts can experiment reach that traditional 'chalk and talk' tools cannot? In-class experiments provide an effective means to help students think reflectively. Creating space for reflection, and teaching reflection, are enduring preoccupations for MPA instructors (for example, Ahmed et al, 2013; Cunliffe and Jun, 2005). In their recent article, Meer and Marks argue reflection to be an 'essential ingredient in public administration, both for an academic and a professional career' (2013, p. 42). For us, reflection takes us back to the fundamental principles of the *Art of Judgment* as described by Sir Geoffrey Vickers in 1965. Reflection makes the 'appreciative system' stronger – for Vickers, this system works via feedback, determining which facts are relevant, and how they fare in relation to our norms. Interestingly for our argument, Vickers observes that:

> '[C]hange both massive and unpredictable makes inconsistent demands for
>
> rigidity on the one hand and flexibility on the other and poses the most
>
> basic policy choice of all, the choice of what to regard as regulable'
>
> (Vickers: 1965, p. 99).

Concerned with judgment, Vickers dedicated a whole chapter of his magisterial book (chapter 8) to the 'limits of the regulable'. Lectures and small group work encourage students to reflect on what they've read, heard and discussed about these limits. While these tools remain our bread and butter, the learning they produce can be didactic and so impose a particular normative vision. Kolb's

(1984) seminal work on experiential learning suggests that we can take reflection further. By creating opportunities for students to *reflect by doing*, the learning process is individualised, and concepts move from the abstract to the concrete.

What learning opportunities can be generated by an experiment? In-class experiments enable the construction of certain types of decision-making situations for students. In this instance, the primary purpose of the experiment is to give students first-hand experience of decision-making in a simulated situation of no control. This experience forms the basis for students to understand that in some decision-making situations the key step is not about the level of regulation. It is about being aware of whether the level of 'regulability' of a given policy problem has been questioned.

What learning processes can experiments generate that other teaching forms cannot? Traditional teaching methods – lectures, presentations and instructor-driven discussions – are efficient ways of delivering large amounts of information to large groups of students. They are impersonal for students however. Specifically, such passive ways of learning can fail to attribute autonomy to the individual learner and to the concepts being presented. Experiments are becoming increasingly popular in primary and secondary level teaching (e.g. Steffe and Thompson, 2000 on their use in mathematics) not simply to demonstrate empirical phenomena but as a platform for students to develop conceptual understandings that are *individual to them*.

And so, without the in-class experiment, concepts like regulatory humility remain linked to the academic literature and the views of the teaching team. Through experimentation and the reflection it stimulates, the originality of students' reasoning can be accessed by them as the students themselves become part of the conceptual analysis.

Let us now outline our specific experimental setting. Langer's experiments, on individuals' tendency to over-estimate the control they can exert, have been replicated many times with the much vaunted sophomore students (Gordon, Slade and Schmitt, 1986) and members of the public[1]. While

this article offers interesting empirical insights into an alternative population – professional public administrators – this is not its principal contribution. Rather than uncovering some 'reality' of students' knowledge regarding odds and probability, our aim is to enable them to construct the tasks in which they are engaged. By making choices in the experiment and comparing them with those made by their peers, practitioner students can be invited to face and reflect upon the biases and contingencies that inform the constructive processes behind within in-class experiments, and decision-making in their professional lives.

Both groups of MPA student-practitioners consisted of public administrators with a number of years of experience in public sector management. All these practitioner-students had at least an undergraduate degree – though most had been out of full-time formal education for at least five years. They were spread across a variety of countries[2]. Neither of the groups are representative samples of public sector administrators or MPA students. This is not problematic, however, given that our purpose is to illustrate the utility of experiments in the classroom in helping student-practitioners critically reflect rather than make any empirical contribution to the illusion of control literature. The utility of data gathered is pedagogic rather than research-oriented.

2. INTRODUCING REGULATORY HUMILITY

Like their colleagues elsewhere, the practitioner-students on the University of Exeter's MPA explore the key debates and the tools of risk and regulation. In the first part of the academic year, the participants explore different styles of regulation and techniques such as 'responsive regulation' (Ayres and Braithwaite, 1992) and the so-called 'risk-based approach' (HMT, 2005). In risk-based frameworks, targeting intervention on the key risks posed by the issue at hand, the public manager must prioritise resources and manage regulatory burdens.

With these basics established, in the second half of the teaching year, students take part in a module on the practice of regulatory reform and one on sustainability (including environmental policy appraisal). Focussing on the rise of *ex ante* policy appraisal and impact assessment in public management, the module on the practice of regulatory reform encourages participants to think about regulatory choice critically, involving them in the analysis of real-world examples of appraisal.

The danger of mis-diagnosing whether regulatory intervention is feasible and normatively desirable is key, because it is not a simple matter of applying the right technique, such as benefit-cost analysis of cost-effectiveness. It is a more fundamental issue of defining the problem and setting the criteria for the evaluation of risks, benefits and costs. In short, it is a conceptual rather than a measurement problem.

By requiring that public managers explicitly consider and cost the 'do nothing' option – i.e. accept the status quo – policy instruments such as impact assessment explicitly question 'just world' assumptions which are prevalent in bureaucracies that actions and outcomes have the same valence (Lerner, 1965; Lerner and Matthews, 1967). It also allows us to discuss with the participants the pressure from public opinion and elected politicians to 'do something' about social-economic and environmental problems – or being seen as 'doing something'. To explore this complex architecture of choice for the public managers in our classes, we use the concept of 'regulatory humility'.

We became aware of regulatory humility via the legal scholar and activist Larry Lessig in his consideration of what policymaking might look like in relation to the future of the internet. Certainly, the concept has been around for quite a while – in a sense, it informed some of the most caustic propositions made by Aaron Wildavsky (1979, especially Part 2) and is, of course, implicit in Vickers (1965). These ideas not only enjoy a resurgence in this article by also in the recent work of Etzioni on 'humble decision-making' and Dunlop and Radaelli on nudge (Dunlop and Radaelli, 2015b). We introduced our participants to this concept using a video of Lessig's powerful presentation to the Italian Parliament in March 2010. In this video, Lessig argues it is necessary to protect the world

against irrational legislation. Specifically, he is concerned that future regulatory interventions aimed at increasing transparency in and control over the online world may at best be futile and, at worst, produce unanticipated harms (Lessig, 2010). Lessig gives the example of copyright regulation, arguing that governments must realise that they cannot win a war waged against our kids and criminalise a generation. They have to become humble and look for other ways to assure the objectives of copyright – rather than falling into the illusion of controlling teenagers when they look for a video or a song on the internet.

Drawing on Lessig, we propose that regulatory humility simply concerns the need for public managers to question how, when and whether they intervene – and consequently be aware of the bias involved in this delicate decision. In the specific context of appraising a regulatory proposal, the basic question concerns the degree of control the regulators believe they can realistically exert over the problem they face. The appraisal process ensures that policymakers have both the ability to exercise choice and the time to think about that choice. Yet, regulatory humility reminds them that they should not discount contingency in the outcomes of those choices – some situations or issues are simply outside the boundaries of what is 'regulable' (Vickers, 1965). Exercising humility is to admit that it is acceptable to do nothing, or to reformulate the problem so that we change our beliefs about who or what should be regulated (the 'kids' and internet in Lessig's example).

After having introduced the concept in the classic lecture format, we watched Lessig's video. That session was rounded-off with a discussion. These traditional teaching techniques were complemented with the in-class experiment. The link between the substance of regulatory humility and the experiment is obvious: regulatory humility, indeed, brings humans' cognitive biases to the fore. The argument here is that a wrong regulatory choice is not always the product of bad data analysis. It can also be the result of biases that are well-established in (social) psychology. The assumption that action is more likely to produce positive outcomes than inaction (Lerner, 1965), the discounting of contingency (Bruner and Revusky, 1961; Starr and Katkin, 1969) and the reliance on

default positions over time are all well-established human tendencies that the inclusion of a 'do nothing' option in impact assessment seeks to disrupt.

And yet, there is only so much we can learn about biases by chalk and talk. By replicating a classic social psychology experiment our students have the opportunity to confront this cognitive dimension and individualise their conceptual understanding. Before outlining the experiment's design, in the next section we examine its learning aims.

3. LEARNING AIMS: COGNITION AND EMOTION

Participation in classroom experiments facilitates autonomous sense-making – where students are able to develop their own individual conceptual understandings through reflection on their own experiences. Before outlining the experiment we address the relationship between experiments, experiential learning and reflection.

The importance of experiential learning is not exclusive to public administration education of course. But, it does have a particular relevance for practitioner-students who are accustomed to, and often more comfortable with, being on the inside of a concept in the world of practice. Experiments offer a concrete reference point from which students can reflect and critically engage. And so, an experiment can act as a tool to make more obvious the relevance of academic theories for the real world. Adult education research tells us that actively involving students in making the lesson helps to embed the message by making it cognitively clear and emotionally memorable (Kolb, 1984; Moffett, 1984). Together these intensify learning (Cunningham, 1997, p. 220). Creating concrete experiences is especially resonant for MPA students. MPA students are professional practitioners who have been away from full-time formal education for some years, or are often operating in a second or third language in the classroom. The need for memorable and simple hooks on which they can hang the material is clear (Cunningham, 1997).

What types of reflection can experiential learning trigger? Mirroring the literature on experiential learning, Meer and Marks (2013) delineate two levels of reflection – the cognitive and emotional. To be educated in public administration requires the ability and willingness to apply public administration concepts. In order to navigate the complexity of the real world of policy making, public managers need to know the concepts but also how to use them appropriately. This is reflection at a cognitive level. Social psychology experiments are usually focussed on one key theme – the limits of control in our case. This feature makes them a useful tool to operate at the cognitive level.

There is also a deeper form of reflection where students and teachers critically engage with academic theories. Such reflexive engagement adds emotion to cognition, and reaches its zenith when we explore ideas and how they relate to us at an individual level (Cunliffe and Jun, 2005; Meer and Marks, 2013). This is a demanding enterprise. When thinking about the pitfalls of regulation, it easy for students (and teachers!) to avoid such deep and personal reflection. For one, the literature does not always assist reflexive thinking. Though the public administration and management literatures are replete with discussions of the dangers of over-regulation and exhortations that public managers do less, better, these arguments obscure a key dimension – the role played by individuals' assumptions of what can be controlled. Specifically, our own tendency to over-estimate our ability to control and the automaticity of the 'do something' impulse is rarely explored head-on. It is easy to agree with the academic arguments against on regulatory failure, and more so to agree with a speaker as persuasive as Lessig. But, this learning is passive, and often done with the unconscious extraction of self from the phenomenon at hand. We can objectively agree with the lecturer on the illusions of control but learning in this way does not necessarily achieve a deep level of personal, emotional reflection. The experiential and sensory nature of participation in an experiment not only helps make concepts accessible it also offers the chance for such internalisation and individualisation.

Moreover, the personal nature of reflexive thinking is often uncomfortable. The likelihood of discomfort is increased when we are dealing with sensitive topics. The issue of control is a sensitive one for professional public administrators and academics alike. Admitting either that interventions we have made may have been futile risks social censure from colleagues and peers whose respect and trust is hard won. In-class experimentation offers a way to create a relaxed and safe environment in which to explore these issues.

What are we reflecting on? Meer and Marks develop an inventory of seven objects of reflection – theories; scientific methods; diagnosis; policy; behaviour; professional functioning, and reflection (2013: 43, table 1). The aim here was to stimulate reflective and reflexive thinking on three of these fronts:

1. *Theory* – the experiment was designed to boost students' understanding of regulatory humility and the assumptions that underpin it;

2. *Behaviour* – the experiment would help students tease out the link between policy-makers' individual actions and organisational outcomes, and

3. *Own professional functioning* – most ambitiously, the experiment was administered to provide a route for students to self-reflect and review their own behaviour with regard to control and intervention. To be clear, the exercise is not a normative one to encourage public administrators to select the 'do nothing' option more frequently. Clearly, this may not always be the most appropriate choice. Rather, highlighting the human tendency to over-estimate control prompts practitioners to interrogate aspects of policy design for instance where chance may mimic control.

4. THE EXPERIMENT: WHY, WHAT AND HOW

We administered a well-known social psychology experiment on unrealistic perceptions of control. Specifically, we adapted and merged two experiments from Ellen Langer's seminal paper published in 1975. Before outlining our approach, some background on the illusion of control thesis is in order.

Langer's (1975) central hypothesis is that people do not distinguish between events determined by chance and those determined by skill. This is made up of two assumptions. First, people are motivated to control their environments – we believe that control helps prove our competence and avoid negative consequences that suggest having no control (Langer, 1975, p. 323-324; White, 1959). Thus, as levels of perceived control increase so do our levels of psychological comfort (Langer, 1975, p. 323). This is true even in situations where exercising skill cannot affect the outcome. Second, people have genuine difficulty in distinguishing between skill- and chance-related situations. These are often closely related in people's experiences. For example, there are elements of skill in chance situations such as dice games where participants can learn the odds (Langer, 1975, p. 324). And so, 'when a chance situation mimics a skill situation, people behave as if they have control over the uncontrollable event even when the fact that success or failure depends on chance is salient' (Langer, 1975, p. 315-316). The result is an illusion of control.

Langer explores this hypothesis using six experiments which introduce factors from skill situations – for example, competition, choice, familiarity and involvement – into a situation of absolute chance – a lottery. The results in all six cases support the illusion of control hypothesis; results that have been corroborated by a series of studies over the last three decades. None of Langer's experiments alone captured the two key elements of regulatory humility noted in section 2 – choice and familiarity – that require elucidation. Rather, two experiments (#2 and #5) are merged and adapted to suit our purposes.

In experiment #2, Langer explores what happens when choice – what she calls 'active involvement' – is introduced to a chance situation. Participants in a lottery are, or are not, given a choice of ticket (1975, p. 315-317). As predicted, the choice manipulation increased individuals' expectations of

winning. The idea that choosing a number can be a proxy for exercising control through skill echoes the findings from observational studies where individuals treat chance outcomes as controllable. Perhaps most famously, it recalls Henslin's (1967) observation of dice games where gamblers adapt their throwing techniques as though they can control the result.

In experiment #5 (1975, p. 320-321), Langer explores the proposition that the more thought individuals give to a situation – what she calls 'passive involvement' – the more confident they will be of success. This is operationalized by asking lottery participants to rate their confidence of winning at different points in time. Where there is time available to think about an event – the lottery draw – the perception of control will increase resulting in greater confidence over the end result.

The illusion of control is a good fit to regulatory humility. One could argue that a lottery situation cannot serve as a proxy for the majority of decision-making contexts faced by public managers. But the aim here is to use an extreme example to create a memorable learning episode to bring the issue of control into relief in a way that may trigger reflexive and personal engagement. According to the illusion of control thesis, individuals tend to disassociate themselves from the illusion – i.e. it is only 'other people' who suffer from a tendency to over-estimate their capacity to regulate events. Conducting Langer's experiment offered a way to present students with the opportunity to face their own assumptions about what they themselves could control.

The experiment was administered as follows. Following day one's lecture and Lessig presentation, at the beginning of the second day students were invited to participate in a lottery. The rationale behind the activity was outlined – with the experiment leader making it clear that students would be replicating a well-known and respected social psychological experiment (without saying which particular experiment this was) in order to explore of the limits of regulatory control.

Given cultural sensitivities to gambling and the importance of informed consent, we stressed that participation was entirely voluntary and there would be no disadvantage for anyone not wanting to participate. We also made clear that no money was involved and the lottery 'winner' would receive a modest, course-related prize (a book). Of the 29 students in our two cohorts, only one student chose not to participate, citing religious reasons.

Each participant was called individually to an office adjoining the teaching room where they were issued with a lottery ticket. To satisfy the active involvement hypothesis, participants were randomly assigned to one of two cohorts – half who chose their ticket and half who were given their ticket. As they were alone when they received their ticket, the participants remained unaware that some had been asked to choose their ticket and others assigned by the experiment leader. Some of those who chose their ticket cited their selection as the result of the number being their birthday or lucky number, while others expressed disappointment that their 'favourite' number had been taken already. On receiving their ticket, participants were asked to rate their confidence of winning the lottery on a Likert scale from 1 to 10 (where 1 = I'm sure I won't win and 10 = I think I will win). To satisfy the passive involvement expectation – where the time for thought increases the perception of control – students were asked to rate their confidence on two further occasions that day (*t2* and *t3*).

The lottery was drawn and results were presented to the students at the next morning's seminar (summarized in figures 1 and 2). Having outlined Langer's illusion of control thesis, the experiment leader initiated a discussion session linking the limits of control with regulatory humility. The outcomes are reported in the next section.

INSERT FIGURE 1 HERE

The expectation that participants' confidence of winning will increase over time for all is met by cohort 1. Cohort 2's results however confound the expectation – though confidence is higher at the end (*t3*), it dips in the middle (*t2*).

INSERT FIGURE 2 HERE

Langer's expectation that those who chose their ticket – i.e. are actively involved in the situation – are more confidence (over time) than those who were given their ticket in a chance situation is only partially confirmed by cohort 1 where *both* groups saw confidence increase. Cohort 2 again confounds expectations with the no choice group reporting higher confidence at *t3* than those with choice.

5. DISCUSSION OF FINDINGS

The findings contained in figures 1 and 2 were presented to the relevant cohort for discussion. Recall that, we used the experiment for pedagogic not empirical purposes. In what ways did the experiment act as a 'learning hook', and how did it help bring regulatory humility to life for each student? In terms of reflecting on the theory, the post-experiment discussion sessions revealed the experiment did contribute to students' understanding of regulatory humility and willingness to critically engage. Cohort 1 used their results to question the causal role ascribed to individual choice in our presentation of regulatory humility. Given that confidence also increased for non-choosers (figure 2), they reasoned that perhaps group norms might be more important in determining public administrators' perception of control. Cohort 2's results made them understandably critical of the argument linking individual choice to perceptions of (regulatory) control. This was a most challenging part of the post-experiment discussion for the instructors who had no explanations for the dip at *t2*

for both choosers and non-choosers (figures 1 and 2). The students' own proposition is outlined in a moment.

The experiment also helped the students critically discuss the behaviour of public administrators in organisations involved in regulation. For example, cohort 2 used their confounding results to unpack the temporal dimension of over-regulation. They reasoned that their results – where over time confidence dipped – undermined the idea that time could be used as a proxy for thought that was then linked positively to confidence. Through their discussion, the cohort arrived at an alternative account however. Agreeing that time was still important, one prominent member suggested that rather than time to think being the causal mechanism at work it was more likely that the time to feel some form of pressure was driving behaviour. In the experiment, they reasoned, it was the pressure to be optimistic at $t3$ given this was the last time they would be asked about their confidence. In the bureau, that pressure could be political or related to furthering their career. This was then linked back to work from an earlier module concerning rational choice accounts of bureaucracy and the links between individual and organizational behaviour (see Friedman, 2001 for a review). As was noted earlier, the experiment is not intended as a mechanism to encourage less regulation. Rather, the aim is to create awareness that chance and control can be confused and prompt students to think more critically about problem diagnosis and the robustness of their analysis. Our students took things further and discussed the pitfalls of overstating the illusion of control. By perceiving actions and outcomes as entirely independent, we risk public organisations giving in to fatalism and practicing 'learned helplessness' (Seligman, 1972).

The final aim of administering the experiment was to help students reflect on their own professional practice. In each cohort there were students who were willing to publicly admit that they had never considered how their own assumptions of control might contribute to wider problems of over-regulation. The experiment did not, of course, disrupt everyone's 'theory in use'. There were a few students who were keen to point out that they had treated the questions of confidence as one of

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calculating the odds (N=2) or had selected the lowest possible score and stuck to that throughout

(N=6). But, in many ways, this is beside the point. The experiment provided a means to put the role

of individual responses to contingency into students' minds.

By providing a wider vista on the limits of regulatory action, and embedding control as a key

dimension of regulatory humility, the experimental approach offers a way to help students build

knowledge. Moreover, post-experiment discussions suggested that it also encouraged them to turn

their minds toward the attitudinal and behavioural aspects of public management. While the three

objects of reflection outlined were of importance to the teaching team, the students also brought

two more to the table during the discussion sessions.

The first of these concerned their reflections on the experiment as a new pedagogic experience. As

was noted at the start of this section, as we tried to make sense of the findings, the dip at *t2*

presented cohort 2 with a puzzle and provided an opportunity for them to construct alternative

propositions. Notably, some of the students pondered how, and if, the structure of the teaching day

may have affected the students' optimism. Specifically, would they have been more confident had

they been asked before lunch had been consumed? While we did not show them the results from

the previous year's cohort – we did not want to inhibit discussion by creating the impression of that

cohort getting the 'right' result – we did confirm that there had been no post-lunch slump the

previous year. And so the search for an explanation went on. This vignette may seem trivial, but it

does highlight more than the preoccupation with catering arrangements that is common to intensive

teaching situations! The experiment, and its unexpected findings, offered the space and impetus for

students to be creative and construct their own explanations.

The second object of reflection the students zoomed-in on concerned another of Meer and Marks'

thirty items – the scientific method (2013, p. 44, table 1). Both sets of students illustrated they were

capable of reflecting on the substantive results – with Langer's and their own findings readily

digested. But, both took the discussion further. Students in the second cohort asked why the public

administration literature on regulatory tools like impact assessment said so little about cognitive

biases. Where was the joined-up thinking in the social sciences? Cohort 1 questioned what social

psychological methods and the literature on cognitive biases brought to policy sciences. This allowed

us to extend our discussion of regulatory humility to the use of experimental evidence in policy

formulation with governments seeking to 'nudge' rather than regulate (John, 2014; Thaler and

Sunstein, 2008).

The aim of the experiment was to personalise and autonomise the idea of regulatory humility. What

claims can be made that the experiment delivered this? Students' individual conceptual

understandings were demonstrated by the experiences they shared where they related the decision-

making of the experiment to that witnessed or experienced in their own professional practice. These

reactions were individual; they were not constructed for students by the teaching team or Vickers or

Lessig. While we cannot empirically conclude that the experiment was the special pedagogic

ingredient that stimulated the generation of these many personal and distinct realities, we did not

observe this depth or breadth of personalisation after the lecture and presentation session on day 1.

This chimes with the education literature's point that experiments are generators of autonomous

sense-making (Steffe and Thompson, 2000).

How did this specific experiment support reflection? Class discussions of the experiment outcomes

revealed that one particular mechanism was important to this specific experiment's success in

stimulating reflection. The importance of the experiment as a *process* and the wider link between

the experiment and personal sense-making of concepts becomes most obvious when we consider

cohort 1's discussion of 'nudge'. Participation in the experiment enabled students to critically

engage with the empirical basis of this emerging regulatory style. Those students who pushed the

discussion demonstrated that they reflected on themselves not simply as recipients of an

experimental treatment but also as sentient decision-makers capable of interpreting risk and control

in different ways. One major concern was that policy instruments, informed by the experiments of

social psychology and behavioural economics, appear to leave little room for participants' changing

conceptual understandings. Rather they generalise and 'scientize' responses without digging deeper.

Finally, students had time to get used to the fact that we were focussing on a sensitive and personal

topic. The process of the experiment meant that rather than a brief, one-off interaction, the class

revisited the themes of chance and control over the course of three days which made it easier to

come to terms with.

What was the view of the teaching team? From the perspective of the teaching team, the use of the

Langer experiment with MPA participants was a success. At the outset, various risks were identified

concerning the administration of the experiment specifically, and the entire enterprise more

generally. In terms of administration, the two main issues were the time the experiment would take

– which could generate fatigue and indifference – and the risk of cross-contamination – as the

students talked to each other it may become clear to them that some had been allowed to choose

their ticket number while others had not. We encountered no significant problems in either respect.

By using break times to invite the students back to the experiment room to give us their confidence

ratings, the experiment matched the normal rhythm of the teaching day. Though the experiment

generated a good deal of discussion among the students about the odds of winning, to our surprise,

we detected no widespread cross-contamination regarding the methods used to allocated numbers

for the lottery[3]. In each year, when the experiment's logic was revealed, students were surprised

that not everyone had received their tickets in the same way. So, while we cannot rule out a few

students suspecting the active involvement treatment, we are confident that contamination was not

widespread in either cohort.

Teaching a concept in this way was new to the teaching team. Seminar teaching should always

involve some elements of knowledge co-production (McCulloch, 2009) – where the exact route of

the pedagogic journey is influenced by the students. Using an in-class experiment leaves instructors

even more reliant on their students and involves risks. But, what if the students are unwilling to

participate? Is it likely that they will not take the experiment seriously enough to make the connection back to reality of public administration? These concerns were perhaps amplified because neither member of the teaching team has a background in psychology or behavioural economics. Rather, both are trained political scientists who specialise in public policy research and have experience of working in or for government.

Yet, our fears were allayed on both counts. Students in both cohorts were intrigued by the exercise. We were careful to conduct the experiment in the second term – by which time our MPA students were accustomed to the intensity of the teaching week and trusted the teaching team. Moreover, the teaching team knew and trusted the participants – these cohorts were capable and willing to co-produce, and for whom the instructors were not expected to provide all the answers (see Horton, 1990 in Cunningham, 1997, p. 220 on the importance of teachers' knowledge deficits). In our view, familiarity and trust are essential for the smooth operation of in-class experiments especially where the goal is to encourage students to think reflexively about their own cognitive biases, and the impact upon their professional practice. Our experience may also reduce the understandable concerns that political science or public management trained academics may have about dipping their toes into the uncharted waters of in-class experiments.

The exercise was taken seriously by both sets of students. Despite the fact that this was neither a proper lottery nor a research data gathering exercise, our students were willing to suspend their skepticism and discomfort to engage with the experiment and subsequent discussion. Indeed, the fact that money was not committed was a key discussion point for one of our MPA cohorts; students were keen to discuss the ethics of decision-makers committing real money to interventions in situations of radical uncertainty. The students were also willing to accept that while public administrators do not face the absolute and perpetual uncertainty of a lottery, this extreme situation is a useful vehicle to stimulate reflection about chance and control in decision-making.

The success of in-class experiments is not simply due to the participants. Reflecting on our experience of the experiment, we believe that the engagement and attitude of instructors is critical. Two main lessons were learnt by this team. First, creating a relaxed environment in which students can reflect takes meticulous planning. Every step of the experiment was discussed and rehearsed before its first administration. With a strong structure in place we could be certain that the learning environment was a safe and fair one (see Cunningham's excellent discussion on what he calls 'the feel good trap' 1997, p. 225).

This may all sound a little too neat or, indeed, controlled. We should be clear; conducting an in-class experiment is risky. The second lesson we learned was to let go of our own illusions of control. The students we worked with produced results that challenged Langer's thesis (in particular cohort 2). Rather than being disaster, these results provided an opportunity for a wider ranging and more creative discussion than we had anticipated. As Cunningham puts it memorably, public administration academics (and practitioners) should '[S]eek stability in private life rather than in the classroom' (1997, p. 226).

Module feedback from the two cohorts was very positive and the students' reflective logs – which they keep for each of their modules – and essays on regulatory risk and reform illustrated a good level of conceptual understanding and awareness of the cognitive biases experienced by organizations and decision-makers. Of course, this does not constitute a formal endorsement of experiments as a pedagogic tool. Our in-class experiment was certainly experimental for us – but not in the technical sense. We neither assessed students' understandings of specifics of regulatory humility immediately after the sessions, nor did we establish control groups that did not receive the experimental treatment. And so, we cannot answer the counterfactual – would we have achieved the type and depth of reflection in the absence of the experiment? Such rigorous evaluation is perhaps a logical next step in exploring the use of experiments as teaching tools.

6. CONCLUSIONS

In this article, we have reported on the use of experiments in teaching public administrators taking a Masters in Public Administration. There is booming literature on the use of experiments in public administration practice, with behavioural and cognitive sciences are beginning to find a place in public management curricula. There is also a tendency to use students as subjects for experiments. But, in comparison, we know less about how experiments can support learning processes in the class, and be used to support pedagogical aims; specifically to assist (practitioner-) students to engage with concepts autonomously and think reflectively and reflexively.

Our pedagogical experiment shows that experimenting with public managers in the classroom gives a real-life experience of the cognitive and emotional dimensions of concepts (in our case, illusion of control and regulatory humility). Further, our experiment paved the way for a wider reflection on why the outcomes occurred – and how deviations for the theoretical expectations can be developed into new intuitions about the role of public managers in situations of risk and uncertainty.

Our results come with caveats of course. The data are derived from very small and unrepresentative samples and should not be used as evidence to support or disprove anything said by psychologists working on illusion of control. For us, the data were a pedagogical hook to enable discussion of when regulators should considering the 'do nothing' option, and how real-world organizations feel under pressure to violate the precepts of regulatory humility.

Despite these limitations, our findings suggest options for innovating in political science teaching more generally. It would be useful to extend this approach to other policy–oriented topics and other types and cohort of students, looking at whether there are differences between practitioners-students and regular undergraduates.

Finally, we point to a practical implication of our findings. At the moment, governments and regulators look at the appraisal of new regulations in terms of evidence-base for decisions, the

quality of data, and how to use cost-benefit analysis. Yet, the estimation of costs and benefits should

be extended to behavioural aspects: the same rule can have different effects depending on how it is

presented to firms and citizens. This observation is key to the current efforts of the US and European

governments to moderate the adverse impact of regulation by considering 'irritating' burdens,

'perceptions of administrative obligations' and 'nudging consumers'. With this article, we added

another dimension: illusion of control as source of bias in the way a decision-maker thinks. More

realistic knowledge on how regulators think should inform the design of tools like regulatory impact

assessment and how they are used by governments.

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[1] One exception to this is the study by Fenton-O'Creevy et al (2003) who gather data from stock-traders.
[2] Brunei, China, Indonesia, Kazakhstan, Nigeria, South Korea, Sudan, UK and USA.
[3] Of course, as an anonymous referee points out, discussion that resulted in contamination may have had an ancillary benefit in terms of learning it would have been at the expense of presenting the experiment as credible.

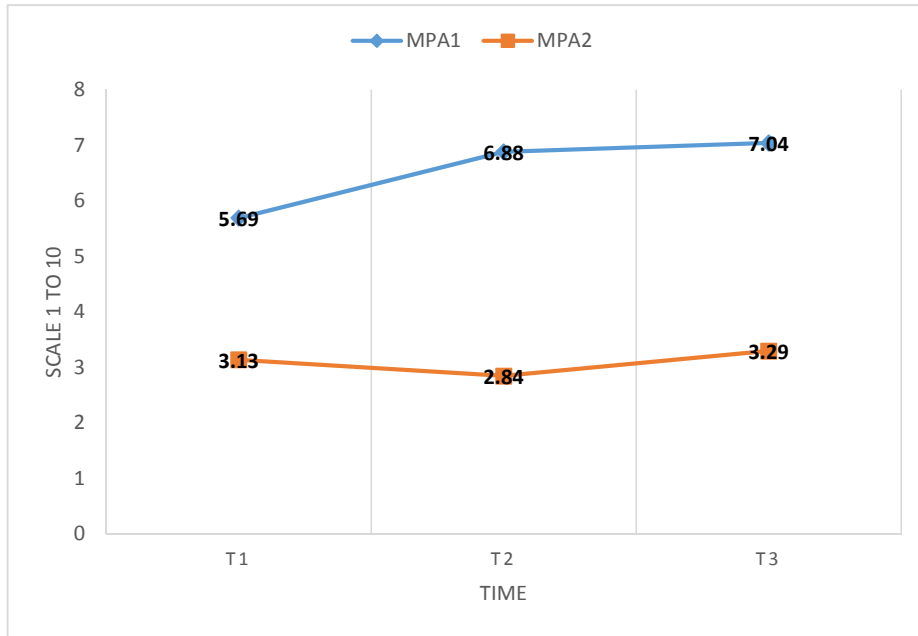**Figure 1: Expectation 1 – Confidence Increases for All Participants Over Time**

Figure 2: Expectation 2 – Choice Results in Increased Confidence Over Time Compared with No Choice