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Simulations and Games in Management Education – The human costs of creating and participating in 'useful illusions[1]'

Abstract: Games and simulations are interaction-intensive pedagogic methods requiring the investment of more human and time cost from both lecturers and students, when compared to traditional teaching methods. In return, these methods are supposed to return superior academic and experiential outcomes for students. In this paper it is asserted that in the current fashion for 'gamification' in higher education and the deployment of more innovative 'experiential' teaching & learning and assessment methods, the real human costs and risks of these activities for academics and students alike are being ignored and are under-researched. From the student perspective, in terms of literal cost, international students are paying considerable fees, do they get what they come for? Did they come to be subjects in our pedagogic experiments? Meanwhile, lecturers also invest significant human and time cost in enhancing the student experience, it is essential to make sure that students are benefiting from the sacrifice of lecturers and the course ILOs are being delivered. The rational question of cost vs benefits is never raised, or is seen as irrelevant in the face of the white-heat of pedagogic innovation. This could be due to a range of factors; from the 'narcissus effect' rendering some of these costs invisible, or perpetually tolerable such that they are never called into question, to pressures to move away from methods that rely on the manipulation of language in teaching & assessment driven by the predominance of international students in cohorts. This research touches on three gaps in the research – firstly, the lecturer's experience in simulation development/management, secondly, the student experience in terms of the costs of receiving (or being afflicted by) the innovations of academics. Thirdly, these things, in the context of very large class sizes of entirely international postgraduate students, a context now *de rigueur* in UK Higher Education. This paper uses reflective autoethnography with the intention to present useful information regarding the categories of human and economic costs of developing simulations in this specific context. It identifies unexpected events that drive costs and time, which will hopefully reduce the 'unknown unknowns' that an academic looking to develop a simulation might discover themselves at risk of. The paper concludes with future directions for research into this important and under-researched aspect of simulation/gamification in modern management education.

Keywords: Simulation, Management education, unexpected events, autoethnography, critical incidents, development

1. Introduction – the Research Gap

Keys & Wolfe (1990) define a simulation as, "…a simplified and contrived situation that contains enough verisimilitude or illusion of reality (or sufficient correspondence to the phenomena it purports to represent)."
In management education, then, such illusions are used to try to create or introduce some semblance of reality or authenticity into a learning environment to the deliver higher-order learning outcomes involving synthesis, creation and action while simultaneously delivering soft-skill development in a way that is impossible with reports, essays and the like. This teaching technique can be applied to any area of management education, but this paper deals more specifically with project management education in very large class sizes, of mostly international students. This is a very different context to much of the literature on games and simulations in management education, which focusses on small group, computerised, executive education. Much work is needed to create and sustain our useful 'illusions', as Thavikulwat & Pillutla (2010) identify, decisions have to be made as to how much of the 'real' is to be represented: "…extraneous details, hazards, cost and inconveniences must be stripped away… producing an accelerated frame of action so that they can be more efficient than real world operating environments." Illusion requires work - work to create it, sustain it, protect it but also there is work in participating in someone else's illusion; the suspending of judgement, the work to enter it and access and use the rules, especially where these conform only partially or not at all to the reality known by the participant. If the rules are inconsistent, or seem to change part-way through, this requires further work to bridge between what is being dealt with in the on-going experience and the goals that individual might have for themselves in the wider academic programme. There is work in coping with the possible distress of seeing a disconnect between permitted or possible actions and desired consequences and trying to bring the two back

[1] An earlier version of this paper was delivered at ECGBL '16, Paisley, UK. This version has substantial additions in terms of adding the student perspective

together via performance within the illusion. This is the work that we assert is under-researched in the emphasis on the superiority of experience-based management education over more traditional methods. Like all work, it involves cost. If it involves cost, there is the possibility, however, uncomfortable it is or unpopular, that the cost outweighs the benefits.

Faria's (1987) comment that simulation solved "…the problem of providing decision-making experience without the risk of giving important responsibilities to people not yet properly prepared for them…" is a leitmotif for its use in postgraduate project management education today. Simulations create safe environments to experience the distinctive aspects of project management - the emergent nature of operations, the clash between the initial plan and the reality of operation, the need for decision making under conditions of time pressure, resource scarcity and that these decisions be communicated to a team who are equally responsible for the outcome of the operation "…without the possibility of long-term punitive consequences" (Vos & Brennan, 2010). Research observed positive consequence of applying this technique in project management education. Findings of studies reveal that applying simulation in project management education can improve students' knowledge level and develop their soft skills that required in managing projects (Geithner and Menzel, 2016). Meanwhile, students enjoyed gamification factors during their learning experience. It is also important to understand the students and their motivations in order to create activities that help them "apply prior knowledge whilst developing commitment to the exercise and experiencing sense of personal accomplishment or failure for results obtained… [with some degree of] emotional experience, be it conflict, time- pressure or whatever in order to place the participant in as close to a real life situation as possible" (Denholm et al., 2012). Novak & Johnson (2012) identify that lecturers and learners experience a series of emotions throughout the process of learning-based games. Also, according to Holman, Pavlica and Thorpe (1997), to be able to learn, students need to be in situations that are "emotionally charged, challenging, and stress[ing] the learner, causing a change of body state." According to Race (2010), students need to invest their emotions in order to feel belonging and for understanding the whole picture of the course.

According to (Faria, 2009), the main considerations in games and simulations in higher education research are; correlates of simulation performance, the effectiveness of business simulation/games in strategic management courses, and what business games teach (i.e. deFreitas, 2006; Kiili, 2007; Mayer, 2012). There appears to be bias towards researching the student experience and the findings are ambiguous: while gamification might encourage participation there is no direct correlation between academic performance and involvement in game-like activities (Domínguez et al., 2013). In their seminal paper, Keys & Wolfe (1990) stated that, "second to the quality of the simulation itself, the *administration* of a game is probably the most important factor associated with a game's success." They also identified 'administration by the instructor' as a major gap in the literature around simulations. Fifteen years later the situation was unchanged. Arundell & Cioffi (2005) noted a research gap in "preparing and implementing simulation in the classroom." Regular reviews carried out by Faria (1987, 2001, 2009) suggest that there is no research on the practicalities of developing and using simulations or the costs to the innovator of attempting this, or cost to the students on the receiving-end of these. Some 'barriers to use' and 'roles of an instructor' research exists. For example, Mozier et al., (2009) identified academics concerns regarding time, need for training and development, supporting informal learning, resource support, access to networks and providing access to secondary information sources. Vos & Brennan (2010) identified concerns about financial cost; evaluating games; effort to learn; ability to facilitate the learning process; administrative work-load; uncertainty about learning outcomes. Hernández et al. (2010) identified roles of an instructor in simulations/games; they facilitate the student learning process, mediate intra-group conflicts, help overcome problems in the course of the business game, act as an academic, professional and personal role model, apply the evaluation system objectively, motivate students, encourage interaction within groups and train students in teamwork.

Some research has tried to explicitly target the experience of lecturers using simulations in education, but Vos & Brennan (2010) found that when interviewees were asked what advice they would provide to academics new to the use of simulations the responses were "essentially platitudes." The lecturer's role and experience, mostly presented in the journal 'Simulation & Gaming', is largely anecdotal and specific to a computer-based, small group, business school context; it is therefore not representative of the large classes of international postgraduates in engineering and business schools discussed in this paper. Strong critique of the use of games and simulations is rare. One notable example is as Wang (2016) and Denholm (2017) point out in fig 1, although there are clear strengths in simulations as teaching methods, particularly in higher-level activities, such as creating and applying knowledge, for fundamental learning activities, simulations may not be significantly better

than traditional and lower cost/risk teaching methods such as lectures or seminars. For gaining and finding opportunities for explaining new concepts, lectures proved to be better than simulations.

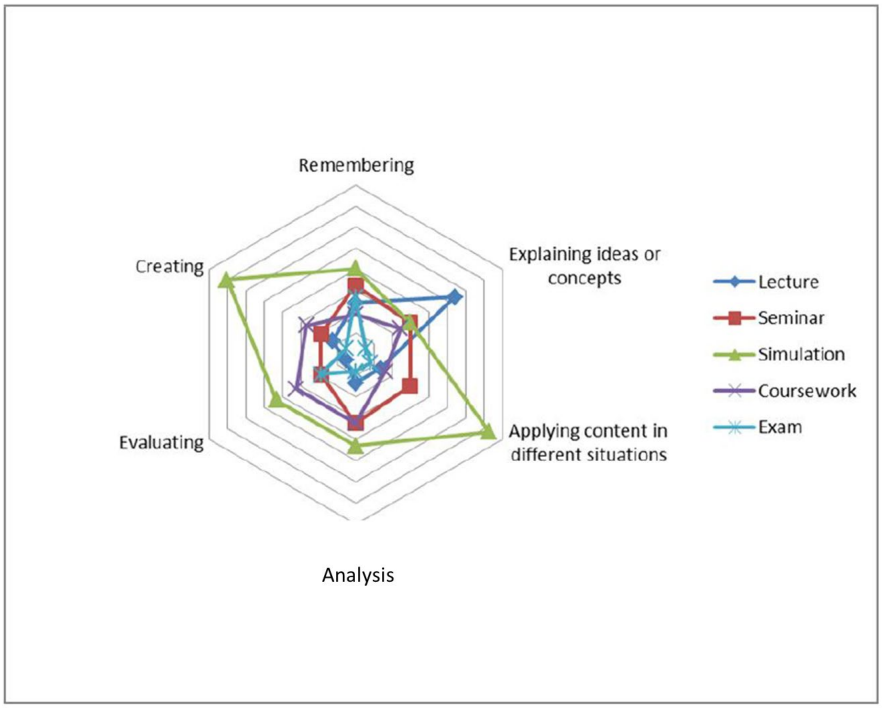

Fig 1. Relative effectiveness of teaching methods in key domains of learning

This paper explores the consequences to the academics and their students of innovating by introducing elements of simulation or 'gamifying' aspects of their teaching practice. It will use the directly reported experience of the academics who have been doing this for several years and the voice of students who have experienced the consequences of having these experiences as part of their learning. Our analysis intends to address the experience of innovating in this manner. Our definition of innovation is, "The profitable exploitation of ideas" (Stewart and Fenn, 2006); educational innovation, our 'useful illusions' should be profitably 'repaid'. As Stewart, Blackwell and Denholm (2016) stated "the new thing should create an economic impact, something worth paying or being paid for, something that creates gain for the innovator and the intended recipient". If the new causes cost it could be to a point that it might empty out any claim to innovation, a matter often overlooked in the rush for new and what McLuhan (1964) referred to as the 'narcissus effect' surrounding gamification. We wish to research the motivations, process and decisions of developing project management simulations from the lecturer's point of view. Although the focus is project management, a competence that can only really be gained through experience, such insights could help colleagues in other areas of management education to plan accordingly, enjoy greater control over their experience of using simulations in large class settings and raise questions to be researched in a more rigorous manner.

2. Methodology

The experience of innovation features feelings, thoughts, values, flashes of inspiration, politicking "and the occasional outsized ego" (Montuori, 2005; Gomes et al., 2001), as well as the more objective factors that lead human beings to engage in innovation (Unsworth, 2003), our case, these are things such as an emphasis on practical competence development, large class sizes, but also objective self-interest such as a desire to demonstrate innovation for promotion cases. The actor providing an 'inside account' of intentional behaviour is essential to social explanation (House, 1991). Examining the first-person experience in this way requires methods that deal directly with human expressions. An autobiographical component allows for a free recounting, while analysis allows for the identification of invariant constituents of the experiences, our

motivating concerns and the social structures that support or constrain. For these reasons for this research, a mixed-method approach of autoethnography to capture the lecturer experience combined with direct observation to capture the student experience was used. Ellis et al. (2011) define autoethnography as "…an approach to research and writing that seeks to describe and systematically analyse personal experience in order to understand cultural experience." The autoethnographic intention is that readers are invited to, as Ellis et al. (2011) put it, "…enter the author's world and to use what they learn there to reflect on, understand, and cope with their own lives." The validity of our observations will be tested by the reflections of our readers and the results of the implementation of our observations in their own work.

- Academic A refers to a one-day competitive simulation based on two cases of one historical event, run in a class of 60 postgraduate students in self-selected teams, at EIGSI, La Rochelle, a 12-week 'experiential' activity in a class of 420 students in imposed teams of 15 and experience of a simulation where he assisted Academic B as below
- Academic B refers to a twelve-week non-competitive simulation based on an urban light-rail project run in a class of 100 postgraduate students in imposed teams of 7, at the University of Manchester
- Academic C refers to a two-hour competitive simulation conducted over six weeks, based on the development of a start-up manufacturing and sales operation, to a group of 200 undergraduate students, in imposed teams, split into 11 classes at Birmingham City University
- Assistant A refers to supporting a large-class 'experiential' PM activity run by Academic A at the University of Manchester.

Wall (2006) noted the lack of a specific methodology for autoethnographic inquiry. This paper relies on personal narratives obtained by use of Critical Incident Technique. This helped the authors to locate specific moments of experience and assist recall to capture the temporal spread of the experience – its antecedents and consequences. Edvardsson (1992) stated that, "Critical incidents are special, problematic, sensitive or directly unpleasant to the individual who has not got what he/she expected." Gremler (2004) identifies criticality as something contributing negatively or positively to an activity or phenomenon. Schluter et al. (2008) suggest that criticality is determined by whether the event or behaviours and associated outcomes are memorable. In all cases the event has changed the actor in some way. The questions used were:

Describe your simulation and how and why you chose to develop it.

Identify an incident of being surprised by emergence of a problem in the use of the simulation.

- How did the problem materialise/how did you become aware of the problem?
- What appeared to lead up to the problem?
- What were the consequences of the problem for you, the simulation and the student?

Identify an incident of success or a feeling of success as a lecturer, in the use of your simulation.

- How did that moment materialise/how did you become aware of the success?
- What appeared to lead up to this moment?
- What were the consequences of this feeling of success for you, the simulation, the student?

CIT-driven autoethnography could be dismissed as merely collecting "top-of-the-mind memories" (Edvardsson & Strandvik, 2000), while using the self as the only source of data could be seen as being self-indulgent, narcissistic and introspective (Wall, 2006). Despite this, we believe validity is possible through our method. Autoethnographers ask a very pragmatic question: "How useful is the story?" and "To what uses might the story be put?" (Bochner, 2002). Wall (2006) proposes the 'literary criteria' of coherence, verisimilitude, and interest." We use autoethnography in a consciously pragmatic, realist way, intending that our texts and analysis add to the sum of useful knowledge on the structures and conflicts that constitute the experience of the higher education academic innovating through simulations. Assistant A, a postgraduate teaching assistant collected comments from students engaged in an 'experiential' learning activity by listening and participating in support activities. This represents an alternative channel to the usual end of unit questionnaires for obtaining the student voice. Her observations were given as continuous text and are presented after the Academics.

3. Results

The initial CIT enquiry amongst Academics A, B & C collected 61 incidents in varying degrees of completeness in terms of antecedent and consequence. As there is no scope for presenting the full texts, a selection of our reported incidents is in table 1. The temporal categorisation emerged naturally from the data, as all three academics recalled events in chronological order:

Table 1: Sample Incidents

Initiation	Development	Implementation/In-Use	On Completion
Had earlier experience of games from PG student days, I remember the game better than many of the lectures, which could indicate a propensity to retain skills from such an experience.	Identified technical requirements, investigated a range of off-the-shelf games but they were unsatisfactory. They did not fit the broader module content, or covered a business plan rather than its operation	Insufficient time for students to develop an understanding of the procedures. Students spoke Chinese in groups which meant it was harder to monitor their discussions in class sessions and pick up on any problems. The Chinese had no experience of this type of learning experience.	I actually felt we had achieved something unusual/novel in that we had developed and delivered a complete simulation exercise from scratch within a relatively short period of time for large numbers of primarily overseas students.
As a student I had experienced a similar project management simulation and the practical learning gained from it still stands out above anything else I learned during this period.	Had to fit into a 2 hour timetable slot and the physical classroom space.	Some whole classes did not attend the actual simulation in Week 2 after being told in Week 1 that it would take place, while other classes were cancelled due to very bad weather. Five students were in Iceland till week 3!	The last group task in which students had to deliver presentations about the simulation and their learning made me realise that we were on the right track but I was also aware that improvements were needed.
I noted a lack of motivation of the students and thought a game session would motivate and give them an alternative learning experience which they would enjoy and benefit from.	Determined goals for winning vs goals for learning, set speed of cycles in the game, method of debrief. How do I determine that a change has occurred in their abilities?	We were overwhelmed by students who had little understanding of basic project management techniques such as developing a budget or completing a risk register. I believe we over-estimated both the capabilities and the enthusiasm of our students. An inordinate amount of time was spent answering questions via e-mail and in class	There was applause at the end of the day-long session, which was gratifying!
There was enough theory on the course! I wanted the students to be able to apply some of the learning.	Decided on means of team member allocation.	Staff involved were cooperative but there were some who either felt it was interfering in their lesson or did not see any academic value in the process.	I immediately set about listing improvements I wanted to make; many of my initial self-doubts had been resolved and my enthusiasm for making the changes took over.
We are unable to give authentic practical experiences – cost, liability, large class sizes… I was bothered by the high	Authenticity in the backstory, tasks and details. What historical events would I have to put in	The inability of students to make assumptions when they either lacked or had deliberately misleading information.	Students felt that they had got more from the simulation but when I saw the final presentations I was unsure how effective the

fees we charge to sit in very large classes and have an impersonal time. I wanted to do something worthwhile for them.	or leave out from the case?		debrief had been, but they were happy and felt that it had been a successful experience.
I was aware that when incorporating IT, simulations can be more resource efficient, releasing lecturers and rooms: this seemed a good idea which turned out to be wrong!	Balancing rigour in 'real world' against non-expert abilities or abilities that are going to improve over the semester.	Different staff members providing different answers to different student groups. Consequences were that we had to spend more time discussing the simulation with each other and with the students who might already have been given incorrect information.	Over-assessment meant that the students probably did not do sufficient deep learning on specific topics while it also meant an inordinate amount of marking for staff members.
A student suggested I 'gamified' my case study work. The idea seemed fun, I played with it on plane home and had the structure in about an hour.	Writing instructions and supplemental materials, concerns over lead times student in understanding instructions to play, to score/win	I think we had a little too much 'real world' at the expense of some student pedagogic learning. I began to doubt the validity of what we were doing.	What do you do when you are not lecturing? I felt like a spare part at times and was quite glad when the early sessions were over.
	We paid for an external to develop the simulation and perhaps presumed too much of the students.	Lack of effort within groups left me feeling powerless as it is one student's word against another, while some good students actively disengaged from the simulation exercise.	Receiving the student feedback forms was a big surprise as the comments were overwhelmingly positive with very little negativity and so the results effectively were the opposite of what I was expecting given the problems/issues we had encountered by email and in class.
	How can I motivate them? Else, I will not obtain the learning outcomes desired, but also will not be able to adequately test the functioning of the simulation.	Excel makes people behave in certain ways - playing to win rather than playing to learn - a student went back in time on spreadsheet and cheated! Modifications students made to the technology and other technologies brought in were incompatible with Excel.	A student told me he used the game as a basis for his MSc dissertation, got 96% and sold it to Thailand!

Many of the concerns of students were related to the project management nature of the activity, with one student acting as a group-appointed PM and the rest performing work on group-allocated tasks, as a project team. Assistant A was an in-class assistant who performed formative feedback and listened to the conversations that students were having, that were not accessible to the lecturer as they were often not in English. The following table 2 is her recounting based upon direct observation.

Table 2 **Observations of Assistant A**

Observations
Some students lost focus in the middle of the semester, suffering mid-way fatigue and doubts about their team and their own performance, work from other degree units began to pull their focus
Working in large teams was time-consuming, there were logistical issues in having to meet frequently outside the class, find times and places for meetings convenient for all students
Although working in a culturally diverse team was seen as desirable at the outset, intercultural communications with teammates was surprisingly difficult
The project manager of the team has to go through all of the works done by group members and cannot relax or fully trust some of them. In the case of social loafing or just lack of commitment, the PM or other team members have to take responsibility for the teammates who do not want to perform their agreed tasks. Equity is a concern and demotivating for some.
There is uneven understanding of the summative tasks in the large team. Some do not know what presentations are for
There is uneven understanding of required nomenclature, specialist terms, abbreviations, explanations from the lecturer do not seem to help these ones, or they are not able to get access to the lecturer, nor are they sure how to find out for themselves, some students google for templates to produce some required content but use these without thinking
Team workers only focus on their own parts, and so do not get an opportunity to see what are the rest of group are doing or how their work fits into the whole scheme.
The work became more intense towards the end of the project lifecycle, many students complained that they had to stay up past midnight to complete works for the team
Some became distracted by the support documentation and the 'real world' behavior required in the simulation and so forgot to evaluate their performance and deliverables by the unit guide or assignment brief, allowing work to drift away from these, wasting time and losing marks.

4. Analysis and Discussion

Looking at table 1, In the initiation phase it can be seen that drivers to innovate arise from present concerns with student performance or their experience (were they getting value for money, were they getting practical experience?) and reflection on past experience of the effects on us of good simulations, with one catalyst being a new idea from a student. On the whole, simulations were a means to address our concerns; we did not appear to be responding to fashion or specific student demands for this kind of learning experience. This raises an interesting question – do we innovate for our own benefit or nostalgia or to reproduce experiences that we enjoyed and then justify it in the name of the 'student experience', 'employability' or some other higher cause?

In the development phase, innovation arises from the conflict between the experience that we would like to deliver and the constraints we have to work within; these constraints ranged from technological – Excel was a choice for all three of us - to suitable rooms for group learning and timetables, to setting the speed, tolerance and degree of verisimilitude of the simulation. The resolution of these conflicts is embodied in the instructions, the incompleteness of which did not become apparent until we actually put the simulations into use. The question arises then, how can we strike a balance between learning to play and playing to learn? If the learning phase places too high a cognitive demand, that energy can not be used for learning and student frustration will raise barriers to their fully entering the 'illusion' therefore, full exploitation of the learning tool. There was a concern that if the students were not able to operate effectively, then the simulation would not receive the best test. We wanted a return on our efforts. One way to ensure a full test of the simulation is to create 'alpha' teams (if such information is available), but then there are ethical issues to forming teams that will be almost certain to perform better than others.

In use, there were many unexpected events - time seemed to run at a different pace to the models we had in our heads, even with piloting, and we were surprised by how slowly the students were able to assimilate the instructions. We failed to realise that some of what was to be done and the associated instructions, resided only in our own heads! There were concerns that we had overestimated the student's ability to deal with incompleteness and uncertainty and questions whether there was too much 'real' for them to deal with. Our schedules were further affected by unforeseen circumstances such as bad weather, holidays and colleagues' attitudes. On seeing our visions hit reality there were feelings of doubt and regret, perhaps imagining our students coming to harm through our choices, imagining their negative feelings. This outweighed any interest in preserving our 'vision' for the learning experience. We were surprised by behaviours driven by the competitive elements and by our choices of underpinning technologies. Students used their own technologies to create support systems that we were not a part of. In the student comment section, this was repeated by the use of Google to find templates for the documentation that they were supposed to produce themselves. Use of language also excluded us from their learning experience, which undermined our sense of control and limited the degree to which we could easily identify students who were not coping, had incorrect ideas, or needed help. Work around the simulation in responding to queries, updating and liaising with each other in the teaching team went far beyond our planned expectations in terms of time.

On completion, there was a certain degree of emotional payoff and relief. We were surprised how tolerant students were of the limitations and weaknesses of our work, which became painfully apparent to us. They seemed happy to be doing something that was non-traditional. This was motivating for us and sparked further creativity and energy to improve and run our simulations or experiential activities again. There were further surprises though – the quantity of work needed to assess the students' learning and that perhaps some had played rather than learned and so had not picked up the lessons that we intended. There was an odd dissonance – some seemed to achieve less but felt like they had more. The quantity of marking in assessment turned out to be no less than if an exam paper was set. Unlike an exam paper, where there is an initial period of discomfort before the beginning of the semester when the paper is written and then discomfort in exam week when the mass of scripts arrives, in. between, there is nothing. Contrast this, with semester-long simulations where discomfort for academics is weekly and not only confined to the specific day that the simulation is used. The email load in my simulation required daily rounds of emails often until midnight.

Looking at table 2, many of these observations appear to arise from students experiencing what is often considered as one of the strengths of well designed simulations in management work - the simulation of 'real life' in project work. Many of the observations are immediately recognisable as reactions to aspects of real work in project teams – social loafing, over-optimistic scheduling, the crash before deadlines despite scheduling, over optimistic scheduling at the start, over optimism revealed at the end, variable levels of work quality from team members. However, for some students, this was their first exposure to these things. On the one hand, yes, this is good preparation for the 'real world', but when the verisimilitude comes between them and the learning outcomes or worse still, between them and their marks, then the lecturers desire to recreate 'real' becomes an ethical matter. How real can a simulation be? It is an illusion, but its consequences are real. If they were working in companies they would have somewhere to turn, a mentor, a line manager. Although a lecturer can provide some of this, it has been a while since we were practicing managers, and for some perhaps never at all. In real life it is likely that the project might be all that they have to do, whereas our students have other units with other assignments, homesickness, and no organisational support or 'onboarding' that might be offered by a project company. In the large team, the worker might find themselves in a job that they do not want to do or be in which would be unlikely if they were working in the 'real world', where they would be more likely to be in a job that they wanted to do. The disassociation that some feel when they do not like the work they are given is actually quote realistic but when in that situation in the 'real world' a worker can leave. The unhappy student in a simulation can not do this. They certainly will learn from their experience, but they also have to be prepared for what that experience will cost them. Its real life, but are they paying to be subjected to real life?

The first comments seems similar to a famous aphorism of Rosabeth Moss-Kanter, "Everything looks like a failure in the middle." Some students are feeling helpless in the middle of the semester, they are equidistant between the initial excitement of doing something new and the payoff of a successful finish. When energy is low and survival in the simulation seems in question, students began to lose focus on what is really matters – the learning objectives. This was especially so for students who were producing 'technical' work in the simulation, spending lots of time on time-consuming detail work, but which is not directly relevant to the project management process that they are supposed to learn or experience. It seemed that some learned specific

techniques to producing material to satisfy the simulation objective, rather than see the whole task for what it was and learn about the management of projects. Some students apparent lack of learning around fundamental PM concepts appears similar to the model of Wang (2016), featured earlier, that simulations are not good for teaching these fundamental things. Perhaps we presume that students know or have sufficient agency or capability to go look these things up for themselves. Lost in the middle of an illusion, they may not have the mental energy to do this. Or, as in the case of googling templates, they may find information for which they lack a proper context and so use it indiscriminately and pay a price for doing so.

Many of the academic experiences resonate with Leedham's (2009) study of drivers for innovative assessment methods in HE, i.e. employability & transferrable skills, dealing with greater student numbers but no corresponding increase in resources or staffing levels, continual calls for 'practical' knowledge, students as consumers and concerns over their feedback. Our experience validates the description of decisions in developing simulations made by Keys & Wolfe (1990), i.e. verisimilitude - how much is 'enough' reality to function in a realistic way; where to draw the boundary between the real and the simulated experience, to shear away what might be realistic in a work context but beyond the expected skill of the student to deal with; how to sequence the student's actions in coordination with the events in the simulation and how forgiving the simulation should be of students falling behind or taking the wrong actions; how to create commitment to the fantasy world that we create, such that the penalties and rewards created through it are felt as motivating; what a student is supposed to know beforehand, what has to be learned in the process of the simulation; how far should the performance of an individual should affect the group and vice versa? The student experience resonates with Allen's (2018) polemic piece, that there is a 'shadow side' to experiential education. Some students are not developmentally ready for it, some students are less emotionally stable than others. He observed in one situation that in an experience running over a semester that some students suffered extended periods of disequilibrium "they could not see the purpose and refused to search for the learning". Students feel "lost and flat-footed" and "wondering about the purpose of the activities.". More time must be committed to debriefing at an individual and group level and at multiple points of the simulation. This of course will add further work and cost to the lecturer.

5. Conclusions and Recommendations

This paper has presented the result of a mixed-method autoethnographic enquiry into the development and use of simulations and games in project management education and the reported comments of students engaged in such. We hoped that, in describing first-hand our experience and subjecting it to some analysis, light could be shed on these under-researched activities and practical insight given to those who would follow in our tracks. It was found that this methodology combined with CIT led to the reporting of many important insights that have not been found in literature review so far, for example, the risks presented in table 3 as a recommendation to consider.

Table 3: Risks in Simulation Development

Phase	**Risks**
Initiation	Setting expectations of student performance or interest based on our own historical experience as students or our current ability to cope with the 'real world' Presuming that the knowledge presented in the degree prior to the simulation is actually assimilated by all students
Development	Underestimating levels of physical resources, time to assimilate instructions, time to play, tolerance for delay Overestimating student's ability to deal with incomplete information and the degree of reality chosen Allowing enthusiasm to cloud judgement of the above Limited identification of the possible unintended uses of any technology involved If 3rd party SMEs are involved, presuming that they are producing flawless work Lack of piloting and lack of metrics to measure performance in testing
In Use	Students discovery of errors in instructions or simulation artefacts

	Student innovations and work-arounds using technology that can exclude lecturers, or that undermine the learning process in order to 'win' or just 'survive' Underestimating the staffing requirement to service the level of student queries, need for teaching teams to exchange information, unhelpful behaviours driven by competition, social loafing Different responses from staff members to student questions Lack of dispute resolution methods for large teams Lack of commitment from entire teaching team Language barriers making in-simulation progress checking difficult - a listening graduate assistant in the dominant language group could useful Unbalanced load on team members Desperation, loss of energy or 'looking like failure' for students in the middle of a semester-long simulation
On Completion	Underestimating marking load created by assessment strategy Debriefing strategy does not inculcate the lessons to be learned

When faced with student responses to some of the challenging aspects of simulations or experiential learning, Is the common response to the effect of "Tough, this reflects reality!" really a good excuse? A consequentialist ethical perspective seems to be the attitude here amongst academics, that the end justifies the means and delivering an enriched experience to those that can best utilise it is worth it, but if just considering the typical 'diffusion curve' of innovations, it is impossible for an entire population of individuals to adopt and adapt to a new thing – there will always be early adopters and laggards. The early adopters might be enjoying the profits of the innovation, but are the laggards the ones paying the cost? Early adopters are also always a minority. The majority of students may claim that they are happy taking part in our illusions and experiences, but can we trust it when they say that they are? Some vocal ones may be. Do we just focus on the strong that are most able to cope in this environment? There is still a role of lectures and seminars in transferring basic knowledge needed to function in the simulation or the subject. Even though in Wang (2016) and Denholm (2017), lectures, seminars and coursework were not scored as highly as simulations in certain learning domains, they were still close in most, especially in the fundamentals. Traditional methods are less costly to lecturers and the criteria and objectives of learning can be clearer, so that students will not be lost while participating. So, considering the cost/benefits and 'value for money', it is essential to not blindly engage ourselves to large simulations.

We have described the life or experience that we wish to focus on and which hopefully colleagues will find resonates with their own. According to the validity criteria suggested by Wall (2006), it would be essential to understand how representative our categories and incidents are to the wider body of academics. How many of these are unique to management education, higher education or international students or large class contexts? The entire life cycle of a simulation is worth analysing. From such consideration we can identify the full cost and the drivers of cost, the political or rhetorical devices required to get approval and cooperation for the implementation. Ultimately, we need to find ways to be objectively sure that our lovingly-crafted teaching illusions are actually innovations and not just costs.

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