Tempus

EU TEMPUS project "Innovating Teaching and Learning of European Studies" (INOTLES)

Working Paper Series, No.1

Teaching simulation game design: A model, tested in the field[1]

Dr. Simon Usherwood

University of Surrey, S.Usherwood@surrey.ac.uk

ABSTRACT

One of biggest challenges in increasing the uptake of simulation games in higher education is the difficulty of learning how to design and run such games. In this paper, a training model is presented that demonstrates the benefits of a mixed method approach, as evidenced by the outcomes of a major research project involving six European countries. The model uses an active-learning approach, whereby users are exposed to a variety of simulation types, both as players and as designers, with additional group discussion deepening individual reflection and confidence. Use is made of a simulation game generator, as well as an asynchronous online simulation, to provide opportunities for users to experience a wide breadth of possibilities within the pedagogy. The benefits and challenges of this approach are considered in light both of general pedagogical theory and of its actual implementation in the EU-funded project, Innovating Teaching and Learning of European Studies (INOTLES). Overall, the paper argues that while teaching simulation game design is not without challenges, it is also possible to provide meaningful support to new users and further stimulus to those who already have some experience. As a result, the approach offers much potential as a means of mainstreaming the use of simulations and in building a culture of active-learning.

[1] This working paper was originally presented at the American Political Studies Association Learning & Teaching Conference, 12-14 February 2016, Portland OR.

1. Teaching simulation game design: A model, tested in the field

A key challenge in the use of simulation games in the classroom comes in the difficulty of learning how to design and use them in the first place. This difficulty is a function of the very features that make simulations so attractive to teachers: their flexibility and their open-ended nature. These characteristics offer almost limitless possibilities, coupled to a very different form of running classes with students, where the teacher's role is radically altered from the traditional hierarchical model. Thus even if the form of a simulation is not very complex or ambitious, it has to be coupled to an attitudinal change by the teacher, which can often prove much more challenging to handle. The net result is that while there is much enthusiasm from users of simulations about the merits and pedagogical advantage associated with their use (e.g. special issue of *Journal of Political Science Education* (2013) and symposium in *European Political Science* (2015)), this does not necessarily translate into a widening pool of users. Costs to entry appear – and, indeed, are – relatively high. If simulation games are to play a more central role in curricula, then this is a situation that needs to be addressed.

This paper offers one model of how we might tackle the situation. Drawing on work by the author for a European Union TEMPUS+ funded project – Innovating Teaching and Learning of European Studies (INOTLES (www.inotles.eu)) – it proposes a multi-stage, mixed methods training programme. This programme is grounded in many of the core values of simulations themselves, especially active learning and reflection, to provide a rounded set of experiences and instruction to participants, with a view to them then developing their own simulations. Given the nature of the project – drawing together participants from six European countries, working together for the first, almost exclusively outside of their mother tongue, and primarily in an asynchronous environment – initial expectations were set a modest level, but the preliminary results suggest that there has been a good uptake and follow-through, suggesting that this is a model that might offer much to other users and indicate how other efforts to help new users learn about this pedagogy might proceed.

The paper opens with a discussion of some of the underlying issues, before describing and analyzing the INOTLES model. It concludes with a consideration of the lessons learnt and the utility to others.

2. Why is it hard to teach and learn about using simulation games?

The use of simulations in political science education has both a long history (e.g. Guetzkow and Jensen 1966 Dorn 1989; Lantis 1998) and recent surge in popularity. This latter aspect might be attributed to a combination of factors, including improving levels of awareness by instructors, student demand and institutional pressure to deliver more 'innovative' learning and teaching (L&T) strategies, in the context of market competition. Whatever the reasons, there is evidence of not only more and more instances of simulation use in the classroom, but also an ever extending literature thereon (see special issue of Journal of Political Science Education (9:2) 2013 for an overview).

However, it is also apparent that this increasing use is not without its hindrances and stumbling blocks. In particular, we might identify three key issues. Firstly, the existing literature has not developed a theory of pedagogy in relation to simulations that goes much beyond recognising the utility to student learning of active application of knowledge and skills. Consequently, the approaches to simulation design are very heterogeneous, which – while not a problem in of itself – does make it harder for newcomers to access the potential that simulations offer. Secondly, use of simulations is not predicated on a deep level of personal engagement by the instructor with what pedagogy that involves, but rather it is treated as a side-show to other L&T strategies and thus the potential benefit is further diminished. Thirdly, there remains a severe lack of basic 'how-to' guides (whether grounded in higher pedagogic theory or not); instead, the typical process of spreading use of simulations is by word of mouth and the adaptation of existing models to new situations. Once again, this undermines the likelihood of getting the most from simulation use.

As noted above, the literature on simulations is growing, but remains incomplete. More specifically, we might consider that there exist three main camps of texts. The first of these is work on individual instances of simulations (e.g. Chasek 2005; Baranowski 2006; Kaunert 2009; Usherwood 2009; Crossley-Frolick 2010). While this has moved on from the 'show and tell' of earlier years, it is still concerned with unique cases, surrounded by some observation on questions of efficacy and/or impact on student learning. The second group contains pieces that provide a meta-survey of individual cases, with the intention of developing more reliable measures of assorted aspects, from student engagement to knowledge acquisition to assessment (e.g. Heitzmann 1973; Winham 1991; Starkey & Blake 2001; Lean *et al* 2006; Chin *et al* 2009; Raymond & Usherwood 2013). The final group is more purely theoretical work, often not tied to actual cases, providing consideration of pedagogical questions at a high level of abstraction (e.g. Dorn 1989; Gredler 1992; Smith & Boyer 1996; Feinstein & Cannon 2003;Frederking 2005). All three of these camps have strengths and make contributions to our understanding: the individual cases provide stimulation for simulation designers and evidence for our evaluation of them; the meta-surveys allow for a better understanding of generic design questions; while the theoretical literature permits a better grounding in the wider context of student learning.

However, from the perspective of a new user of simulations (or indeed, someone with more experience, but who wants to move into new ways of developing their practice beyond a first instance), all three areas of literature present very limited utility. The huge degree of flexibility that we can apply to designing a simulation – be that in terms of length, size, topic, complexity, assessment and connection to other learning elements, to name but a few dimensions – means that the individual case literature is almost inevitably not fully appropriate to the new users' needs. While the two other camps can give some guidance on aspects of potential advantage or concern, it is then hard to translate back down into specific practice.

In essence the key issue here is that each simulation is effectively operating in a unique situation, speaking to a unique set of needs/objectives. The wide diversity of Higher Education institutions, study curriculum design, instructor teaching objectives and student bodies all contribute to the

mutability of simulations mentioned above. One illustration of this has been the anecdotal evidence that even when a simulation is taken from its originator and used elsewhere, it ends up doing different things. Thus a State of Nature game (http://bit.ly/WVV2kp), originally developed to illustrate the concept for an International Politics class, was used by the author to open up discussion on how people interact.

The upshot of this is mainly that the literature typically proves to be little more than a prompt to reflection on the part of the simulation designer, who is then left with having to find their own ways of resolving issues and operationalising their ideas. In practice, this gap is usually covered by one-to-one discussion with other simulation users and with colleagues, using dialogue to expose and resolve specific issues. Thus the author's own experience of designing a large scale simulation (see Usherwood 2009 for more information) saw the combination of personal experience of participating in similar scenarios, coupled with repeated extended discussions with designers, colleagues and students, in addition to academic literature and conference presentations. After the initial delivery, internal feedback added another path of information to this mix.

Certainly this blended method appears to work well in settling new users into their first steps to become more self-sustaining and capable of subsequent iterative development. However, this comes at a clear cost in terms of limited the scope for mass dissemination of simulations as a pedagogy. If suitable individuals are not available, then the gap to the literature is much more difficult to cross and there is more potential for the user either to design a simulation that does not work appropriately to their needs or to decide that the effort is excessive, leading to not pursuing the matter.

3. How might we address these difficulties?

In a previous paper to this conference (Usherwood 2013) the author suggested four models that might begin to work towards some new ways of supporting new users. Since these models informed the INOTLES model, it is useful to reprise them briefly here.

A first approach is one that sits most closely to existing practice, namely the development of 'standard-type' simulations. This would entail the identification of a limited set of learning objectives and a structure for realising them, together with appropriate materials and/or instructions for users to make appropriate adaptations to their specific needs. As a partial demonstration of what this might look like in practice, we might look at the crisis game mentioned earlier (http://bit.ly/UqjHPN): the page provides a worked-up set of documentation for the user, together with a template of assorted aspects for consideration, in order to let the user find a specific arrangement that meets their needs. Likewise, the Wikiversity resource on 'Simulations and Games for the Enhancement of the Learning Experience' (http://en.wikiversity.org/wiki/Portal:Simulation_and_Gaming_Archive) offers a similar approach, with specific documentation supported by more generic materials.

In essence, this approach attempts to find a *via media* between specificity and generality, by speaking to both sides. In this, it shares some of the same ideas contained in the Pedagogical Pattern Collector

(http://thor.dcs.bbk.ac.uk/projects/LDSE/Dejan/ODC/ODC.html), a project that asks instructors to separate out completely their pedagogy from their content, the better to allow such pedagogies to escape from their usual disciplinary silos. By explicitly giving the user this extended set of materials, we might expect that their utility will increase, as that user can see more clearly both the potential and the scope for adaptation, scope to which they might in turn be able to add in the case of web 2.0 scenarios.

However, it is also evident that a number of rather major issues would need to be addressed. Firstly, the identification of learning objectives is not a simple process, especially in the case of simulations, as they can speak to multiple agendas simultaneously: indeed, we might well argue that this is one of the main attractions of the pedagogy. Secondly, even if a set of learning objectives can be isolated, then it is still clear that there will be multiple ways that they can be addressed in simulation design terms; a move towards standardisation might then reduce some of the creativity currently evidenced in practice, as users converge on a single approach. Put differently, there is more to simulations than Model United Nations. Finally, there is the practical problem of ensuring that all the relevant material is included in the package. It is often only in the playing or the debrief of the simulation that all the aspects are considered, and a pertinent issue might not come to light until an advanced stage, when it might cause complications.

If we can see some issues surrounding the development of standardised simulations, then we might look to the other current element in supporting users, namely the community of existing users. A second area for consideration is the building of a more structured and involved discussion within this community. By creating spaces for the discussion of all aspects of simulation use, the more material and more supporting discussion will be generated and shared. This will, in turn, mean that it is more likely that elements of use to a new user will be available and someone is on hand to help with its operationalisation. While not primarily conceived of in this particular light, The Active Learning in Political Science blog (http://wordpress.activelearningps.com/) offers some idea of a how a community might operate, sharing resources and reflection with a wider audience.

The key barrier to this is one of resource cost. To maintain a blog such as ALPS requires a considerable time commitment from bloggers, and this needs to be given over a long time frame. Moreover, ALPS does not offer much in the way of resources *per se*, but focuses mainly on the reflective element. Without clear individual or institutional incentives so to do, there is not much reason for someone to become a regular contributor, especially when that contribution is likely not be matched by returns of ideas for some time: thus, even with 6000 page views per month, ALPS has only gained one new regular contributors since its inception in mid 2011. Thus, in the absence of a spontaneous sea-change in attitudes, this route does not offer any immediate relief to the problem.

A possible resolution of this barrier would be to use the expertise of individuals on a one-off basis, by using their knowledge to construct decision-making trees. Such models are not uncommon in other spheres – notably medicine (e.g. Sonnenberg & Beck 1993; Wu *et al* 2005), where they are important

aids to treatment choices – but they have not spread far into pedagogic circles. In essence, it requires the identification of logical questions, the answers to which would indicate an optimal solution. Randolph & Posner (1979) have provided an example of this in operation, albeit at a relatively high level of generality: this article is useful for highlighting the intrinsic need to connect simulations to other pedagogies in such a process.

The difficulty comes in seeing how best to move beyond Randolph & Posner's model. On the one hand, the logical starting point for such a tree is that of "what do you wish to achieve?" or some other variation on the identification of the learning objectives. As noted, this does not presuppose that simulations will be the appropriate way to achieve these, so a tree that was to be of real use would need to extend across the full range of pedagogies, an undertaking of considerable complexity. Even if the preconditions for choosing simulations were established – so that only this pedagogy is then explored in depth – it is hard to see how we could get very far into the detail of what a specific simulation should look like. Again, this reflects the large range of possibilities within the pedagogy and the multiple ways that learning objectives can be addressed, as noted above. Seen as such, the practicality of the exercise might be called into question.

Of more potential practicality than a decision-making tree is the final path to be considered in this paper. This takes the pedagogic assumptions of simulations and turns them back on themselves: by helping users to experience the intrinsic uncertainties contained within modelling the world, they can better appreciate the ways through them. In more practical language, this might look like a simulation of designing simulations, where the participant is given the task of creating a simulation to a given specification, which is then changed (either randomly or to some pre-determined set of protocols). The need to actively respond to changing requirements allows the participant to recognise the connections between different elements and the opportunities to work with (or around) them: by having several different starting points, the tendency to always use the same basic model might be overcome too, so enabling the participant to explore new areas of simulation use.

As a direct consequence of the presentation of the 2013 paper, the author produced just such a simulation (http://bit.ly/1Pn6DHa) in order to illustrate the concept. Using a very simple series of steps, participants are given a series of parameters within which to develop an initial idea, before being confronted with some evaluative questions that allow for a sense check. While the production of this game was relatively simple, this entire solution is not without problems. The specification of the starting point needs careful consideration to ensure it is driven by factors that fitted to wider needs, while the possibility of failing to find solutions (and thus scaring off a new user) also needs some reflection. However, in terms of scoping the variety and complexity of simulations, such a method offers a much more manageable approach than the other options discussed above.

4. The INOTLES model

Innovating Teaching and Learning of European Studies (INOTLES) is funded by the European Union's main programme for education, TEMPUS+, for the 2014-2016 period. It involves nine universities from six European countries and aims to help recast pedagogies and curricula in European Studies in three Eastern partners: Ukraine, Georgia and Moldova. To that end, two universities from each of those countries participates, with three Western partners providing specialized input on particular approaches: Maastricht (problem-based learning), the Institute of European Studies, Brussels (e-learning) and Surrey (simulations). The project is divided into work packages, which work from analyzing and synthesising existing literature to training trainers to local implementation in the Eastern partners. In this paper, we will discuss the training of trainers and more particularly the model adopted for the simulation games element, which was led by the author.

Overall the work package aimed at giving participants experience both of playing and designing simulations, as well as providing a space for discussion and debate about how this might work for them. Over approximately six months, there was a mixture of face-to-face, online synchronous and online asynchronous activities, mainly focused on simulations, but also with some cross-cutting elements with the other pedagogies being developed. Approximately 20 participants were involved, mostly from the Eastern partners. A summary table and timeline is included in Table 1.

The initial meeting in June 2014 was part of a larger event held in Brussels, which allowed all participants to meet each other, to visit the European Union's main institutions, and to set out the plans for the coming months. Given that the rest of the training was to be run remotely, this was an essential first step, since it facilitated subsequent discussion and gave everyone involved a common reference point. In addition, by running a workshop on general issues involved in the design and use of simulations, it meant that basic questions could be asked and answered much more freely, and be shared with others. The importance of this was underlined by the need to work around the academic calendar, which meant that the summer period was devoted to participants reading a selection of key keys, to inform and provoke them, so that they would come back into the autumn period with renewed interest.

The first major exercise of that period was to get participants to use the simulation-simulation discussed in the previous section of this paper, firstly using one of the topics given to them and then with a learning objective of their own. Even though participants had had relatively little exposure by this stage, it was considered useful to get them engaged in a design process early on, so as to make them more aware of the factors involved. As used, the simulation-simulation proved to be relatively quick to use and then write up for subsequent feedback, so participants were given a safe space within which to try out their ideas. Their games were also posted to an online forum on the project's intranet, along with the feedback, so that they could see how others had tackled similar issues in diverse ways: it also had the benefit that it provided encouragement to other participants to see the group progressing.

Table 1: The INOTLES model for training trainers in designing & using simulation games, 2014

Week	Task
Mid-June	Face-to-face meeting with half-day session on basics of using and designing simulations by lead trainer
4 August	Preliminary readings circulated to participants, who produce feedback points & queries
25 August	Collection of feedback points from literature and feedback from lead trainer
1 September	2 x use of simulation-simulation: 1. Generic simulation 2. Simulation with learning objectives defined by participant
15 September	Collection of practice simulations/comments and individual & group feedback from lead trainer
22 September	Online group discussion about simulation-simulation 1st Webinar on 'student engagement'
29 September	Begin group simulation exercise (to run to late October)
13 October	WP3 Webinar on 'how to deal with failure'
20 October	Final week of group simulation
3 November	Group discussion of issues in running simulations
10 November	Use of simulation-simulation to build new simulations
17 November	Submission of new games for individual & group feedback from lead trainer
24 November	3rd Webinar on 'assessment and feedback'

The second phase of the online period was the running of an online, asynchronous simulation game, created especially for the training. It created an international environment somewhat analogous to Europe and Russia, and gave participants roles that had relevance to their pedagogic interests (e.g. how smaller countries act in such an environment). This game (http://bit.ly/1PEX0iR) was run over one month and gave participants the experience of a very different type of simulation from the small, class-based games that had been used in the initial training: this not only gave them a sense of the range of possibilities involved in simulation games, but also sensitised them to the difficulties of working in an online, asynchronous environment, where it can be very hard to maintain students' interest and engagement.

This led into the final phase of the training, where participants were asked to revisit the simulation-simulation to help build new games of their own choosing. Here the intention was to give an opportunity to develop content that would be of specific use to each individual in their teaching, not least because the subsequent phase of INOTLES was to be local implementation: the hope was that this alignment would help bring out any latent issues that had not been resolved.

Finally, sitting alongside these simulation-specific elements, there were also a series of webinars, bringing together the different pedagogic groups to discuss cross-cutting issues, including student engagement and assessment. These 90 minute sessions sought to bring together the participants in reflecting on their experiences, with the training leads providing context and support.

While not a part of the training proper, there was also a further face-to-face meeting in Tbilisi, Georgia in January 2015, where each group also presented a summary of key learning points to the consortium and invited representatives from Georgian civil society and higher education.

5. Did the INOTLES model work?

Evaluation of any learning intervention is problematic, given the difficulty in isolating particular effects and variability over time (to take just the two most obvious issues), but this is all the more so with this model. Participants were all active teachers in their home institutions, and so regularly reviewing their practice over time; several also took part in the parallel training programmes for other pedagogies; and, finally, there was no prescriptive form of learning outcomes, beyond that of improving knowledge of how to design and use simulation games. In the absence of any summative assessment of the training, it is necessary to rely upon self-reported learning and the author's own observations.

Participants were invited to produce a summative presentation for the final face-to-face meeting in Georgia, to highlight their learning points, as well as key challenges. This 15 minute presentation included contributions from all participants, drawing on a final group conversation beforehand, and highlighted a good level of insight into the advantages and disadvantages of using simulation games. Perhaps of key relevance here was the recognition of a steep initial learning curve for new users – both teachers and students – especially where structured training programmes of the kind offered by INOTLES were not available. Based on this presentation and level of contributions to the various tasks during the training, certificates of completion were awarded to approximately 60% of the group: all of those who had contributed the different exercises were included in this section of the group, and no one who had contributed did not receive their certificate.

This points, however, to the fundamental difficulty of the model, namely of maintaining participant engagement and contribution. While there had been a prior recognition of the likely drop-off in participation rates for a six-month, primarily on-line and asynchronous, multinational and non-native tongue training programme for individuals with already substantial workloads in their day jobs, this was still very hard to combat (see also Blum 2005). As a case in point, the webinars – time-bounded and synchronous – were generally felt by both instructors and participants to have been the most popular and immediately constructive parts of this programme and its sister programmes for problem-based learning & e-learning (ironically, in the latter case): the immediacy of discussion and the ability to see one another were cited as central in this. As much as the model allows for individuals to drop out, at some point there is a challenge, especially when asking participants to play simulation games.

While it was possible to encourage the active members to use others' inactivity to shape events in the online game – which they did with some alacrity – this did not then translate into the inactive returning to the group. As a learning point for participants about the difficulty of running online games, this might have been of interest, but it was not the original intention.

Similarly, the dominance of written interaction was also an issue, since participants were typically more confident with their spoken English than their written (Morse 2003). The initial assumption that the asynchronous form of much of the work would mean that time would be taken reviewing and editing contributions now looks somewhat ambitious, given the general work pressure that everyone involved was experiencing. Set into that broader context, the ability to turn something around quickly and 'get it off the desk' was rated more highly than producing more extensive contributions that might have resulted in a marginally improved learning outcome: 'good enough' trumps 'as good as can be.' To be clear, this was as much an issue for the author as it was for the participants: my capacity (and willingness) to chase people to do what they had signed up for at the start was limited, especially given that it often involved asking institutional coordinators to do the chasing, as had been agreed in advance.

Despite these substantial issues – also found with the other training groups – it is still useful to note that positive and constructive outcomes did still ensue. In the 2015-6 academic year, the Eastern partners are each required to implement at least one of the new pedagogies in at least one module/course, but all have implemented well beyond this, with simulations being used over a third of time (i.e. more than might be expected *pro-rata*): one participant has also reported extending their previously-used simulations to new scales as a result of the training. Evaluations of these new modules/courses are not currently available, but will form part of a wider evaluation exercise of the entire INOTLES project in late 2016. However, anecdotal reports suggest that participants have been successfully using their new knowledge and experience and that students have been similarly positive.

Beyond this first wave, participants were also intended to train colleagues locally during the 2015-6 academic year, a process that is still underway. This will be a more crucial test of the success of the training programme, since if the original participants are unable to explain their knowledge and learning to others, then the model has been unsuccessful in a key area. At the same time, it is important to remember that this constitutes a higher barrier for success than is usual in training programmes, since the effects much work through at least two steps instead of the more-common one step. Again, since this work is ongoing, no formal evaluations have been received to date and it is hard to make even informal judgements at this stage.

6. Conclusions

Simulations are intrinsically awkward pedagogic tools to learn to use. Their flexibility and the more passive role of the teacher combine to offer huge potential for learners, but also substantial barriers to their adoption by teachers in the first place. As Iyengar & Lepper (2000) noted, increasing choice can

be a demotivating factor for individuals; we might therefore seek to help those individuals to ground themselves more fully into the pedagogy, rather than just present them with a long list of what they might do and leave them to it. If we are to move beyond the more passive models outlined in the first half of the paper, then it will be essential to develop active training programmes that are efficient, effective and scalable: the INOLTES model is a first step in that direction.

As set out, the benefits of the INOTLES approach seem clear: by using the fundamental principles of simulations to teach about simulations – especially active, participatory learning – the programme teaches as much by example as by content. There is a common view that the best way to understand simulation games is to play them and that appears to be borne out in this case as well, where the small, face-to-face exercises employed in the first group meeting provoked much discussion and debate. Any approach that does not include such participatory elements runs the risk of not letting participants get the learner's eye perspective that is so valuable when used in the classroom.

At the same time, clear limitations exist. Training is more likely to maintain participation when delivered face-to-face over a more concise timeframe: if online elements are used, then synchronous events are better for drawing and holding participant attention. Such issues are generally understood, but are critical if we are to address the matter of scalability: while face-to-face and/or synchronous environments are more engaging, they are also harder to organise so that many people are participate. The trade-off between depth and flexibility to people's schedules is one with which all online learning environments have to contend. As the INOTLES model moves into its final evaluative stages, it is hoped that the insights that this produces will help to inform that debate.

7. Bibliography

Baranowski, M. (2006). "Single Session Simulations: The Effectiveness of Short Congressional Simulations in Introductory American Government Simulations", *Journal of Political Science Education* 2(1): 89-112.

Blum, K. D. (2005). "Gender differences in asynchronous learning in higher education: Learning styles, participation barriers and communication patterns", *Journal of Asynchronous Learning Networks*, *3*(1).

Chasek, P. (2005). "Power Politics, Diplomacy and Role Playing: Simulating the UN Security Council's Response to Terrorism", *International Studies Perspectives* 6: 1-19.

Chin, J., Dukes, R. and Gamson, W. (2009). "Assessment in Simulation and Gaming: A Review of the Last 40 years", *Simulation & Gaming* 40 (4): 553-68.

Crossley-Frolick, K. (2010). "Beyond Model UN: Simulating Multi-Level, Multi-Actor Diplomacy Using the Millennium Development Goals", *International Studies Perspectives* 11 (2): 184-201.

Dorn, Dean S. (1989). "Simulation Games: One More Tool on the Pedagogical Shelf", *Teaching Sociology* 17 (1): 1–18.

European Political Science *(*2015), symposium on "EU simulations as a multi-dimensional resource", *European Political Science* 14(3): 205-278.

Feinstein A. and Cannon H. (2003). "A Hermeneutical approach to external validation of simulation models", *Simulation & Gaming*, 34(2): 186-197.

Frederking, B. (2005). "Simulations and Student Learning", *Journal of Political Science Education* 1(3): 385-393.

Gredler M. (1992). *Designing and Evaluating Games and Simulations: A Process Approach,* London: Kogan Page.

Guetzkow, H. and Jensen, L. (1966). "Research Activities on Simulated International Processes", *Background* 9(4): 261-274.

Heitzmann, W. (1973). "The Validity of Social Science Simulations: A Review of Research Findings", *Education* 94(2): 170-174.

Iyengar, S. S., & Lepper, M. R. (2000). "When choice is demotivating: Can one desire too much of a good thing?", *Journal of personality and social psychology 79*(6): 995.

Journal of Political Science Education *(*2013), special issue on "Simulations in political science", *Journal of Political Science Education* 9(4).

Kaunert, C. (2009). "The European Union Simulation: From Problem-Based Learning (PBL) to Student Interest", *European Political Science* 8-2: 254–265.

Lantis, J. (1998). "Simulations and Experiential Learning in the International Relations Classroom", *International Negotiation* 3: 39-57.

Lean, J., Moizer, J., Towler, M. and Abbey, C. (2006). "Simulation and Games: Use and Barriers in Higher Education", *Active Learning in Higher Education* 7(3): 227-242.

Morse, K. (2003). "Does one size fit all? Exploring asynchronous learning in a multicultural environment", *Journal of Asynchronous Learning Networks* 7(1): 37-55.

Randolph, W. A., and Posner, B. Z. (1979). "Designing meaningful learning situations in management: A contingency, decision-tree approach", *The Academy of Management Review* 4(3): 459-467.

Raymond, C. & Usherwood, S. (2013). "Assessment in Simulations", *Journal of Political Science Education* 9(4): 157-167.

Smith, E., and Boyer, M. (1996). "Designing In-Class Simulations", *PS: Political Science and Politics* 29(4): 690–4.

Sonnenberg, F. A., and Beck, J. R. (1993). "Markov models in medical decision making a practical guide", *Medical decision making* 13(4): 322-338.

Starkey, B. and Blake, E. (2001). "Simulation in International Relations Education", *Simulation & Gaming* 32: 537-551.

Usherwood, S. (2009). "Enhancing Student Immersion in Negotiation-Based Learning Environments", *International Journal of Learning* 16(7).

Usherwood, S. (2013). "Building resources for simulations in political science", paper presented to APSA Teaching & Learning Conference, February 2013, Long Beach CA.

Winham, G. (1991). "Simulations for Teaching and Analysis," in Kremenyuk, V.A. (ed.), *International Negotiation: Analysis, Approaches, Issues*, Jossey-Bass Publishers, San Francisco, p. 409-423.

Wu, S. M., Chao Yu, Y. M., Yang, C. F., and Che, H. L. (2005). "Decision-making tree for women considering hysterectomy", *Journal of Advanced Nursing* 51(4), 361-368.

Websites:

‘Innovating Teaching and Learning of European Studies’: www.inotles.eu

‘Active Learning in Political Science’ blog: http://wordpress.activelearningps.com/

‘How to do Simulation Games’: https://sites.google.com/site/howtodosimulationgames/

‘Archive for Simulations and Games for the Enhancement of the Learning Experience’: http://en.wikiversity.org/wiki/Portal:Simulation_and_Gaming_Archive

‘Pedagogical Pattern Collector’: http://thor.dcs.bbk.ac.uk/projects/LDSE/Dejan/ODC/ODC.html