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Celebrating the 10th simulation workshop: The story of the conference series

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ABSTRACT

March 2021 saw the running of the 10th Operational Research Society Simulation Workshop (SW), albeit delayed by a year due to the Covid-19 pandemic. It is over 20 years since the planning commenced for the very first SW which took place in Birmingham in March 2002. To mark this occasion, this article presents a short history of the conference including the events that led up to the first conference, details of the first SW, a summary of all 10 SWs, and how all this led to the creation of the Journal of Simulation. As founders of the conference series we provide our personal reflections on these events.

1. Introduction

March 2021 saw the running of the 10th Simulation Workshop. This, of course, was delayed by a year due to the Covid-19 pandemic. It is, in fact, over 20 years since the planning for the inaugural workshop in 2002 started. We set-up this series of UK-based conferences following some years of running successful events through the Operational Research (OR) Society's Simulation Study Group. More correctly, we ventured to run a conference in 2002, and then one in 2004, and before we knew it the run of conferences had become a series.

On the occasion of the 10th Simulation Workshop this paper sets out the beginnings of the conference, its history and our guiding philosophy for these events. There have been some light hearted and challenging moments along the way. What we hope to show is that two early career academics, if they put their minds to it, can create something out of nothing. As athletes often say on winning an event, "if I can do it, anyone can"; albeit a statement that has a strong dose of survivorship bias! We would encourage our colleagues to think in the same way and simply have a go. Doing so even helped us become senior academics.

In this paper we set out how we teamed-up to lead the Simulation Study Group, the developments that led to the first Simulation Workshop, the key facts, figures and events over the last 20 years, and how all this led to the Journal of Simulation. Of course, it is quite possible that we have omitted some things of importance, or misreported some of the events that took place; all such errors are probably a result of our age and certainly not deliberate attempts to misrepresent history!

2. The beginnings: The simulation study group

The story of the Simulation Workshop started for us sometime around 1996. Stewart was a junior member of staff, indeed a Teaching Fellow on a temporary contract, at Aston University. In his annual review with the Head of the Operations and Information Management Group, Professor Colin Lewis asked him if he was involved with the OR Society's Simulation Study Group. To Stewart's shame he admitted that he had never heard of the group. Professor Lewis pointed him to the inside cover of the Journal of the Operational Research Society where it not only told him of the existence of the group, but revealed that it was being led by a certain Ray Paul and David Balmer. Somewhat embarrassed by his lack of knowledge of both the activities of "his" Society and his chosen research field, he emailed Professor Paul to ask about the group. (At this point Stewart had known Ray for around four years, but only ever met him at conferences on US soil.) Stewart had expected to find the Study Group was a hive of activity that he had been missing out on and that it was about to transform his career. To his surprise, he discovered that the group had not met for some years. At least that explained his ignorance of the existence of the group.

Ray went on to say that the group needed new leadership from someone "like you". For those who have worked with Ray, you will know that it is very hard to say "no" when he makes a statement like that. Indeed, he went on to say that he had just employed a new lecturer called Simon Taylor and he thought we would do an excellent job of running the Simulation

Study Group together. Simon had been a Research Fellow in the Centre for Parallel Computing at the University of Westminster working on Distributed and High Performance Simulation. Ray had had a similar conversation with him about Stewart with the "like you" and "no" options! Neither had any idea about who each other was, but Ray's convincing arguments sounded reasonable ... and that is when we (Stewart and Simon) started to work together.

One of our earliest discussions with each other about the study group took place at the Winter Simulation Conference in San Diego in December 1996. We visited a bar in downtown San Diego, discussed ideas for the group and rather than forget them, wrote them on a menu we "borrowed" from the bar. That menu (shown in Figure 1) guided our thoughts over the next couple of years. Our other memories of that evening were that it was probably the last time Stewart was asked to prove he was over 21 by a bar attendant and having to beat a hasty retreat onto a San Diego tram as a man with a large stick was threatening us!

We organised the first of the new Simulation Study Group meetings on January 29 1997at Aston University in Birmingham with two speakers: John Salt and Stewart Robinson. The title of the event was "Simulation Should be Simple and Fun: Some Do's and Don'ts of Simulation", which borrowed heavily from John's keynote talk at the 1993 Winter Simulation Conference. To our surprise around 20–30 people turned out for a two hour early evening event. One notable attendee was Sally Brailsford who had travelled from Southampton University; this was

the first time that we had met her. We enthusiastically went on to organise five further meetings during 1997, although one did not run because of poor attendance.

One thing we learnt from these meetings was that attendance at short one or two speaker events was generally quite low. So in 1998 we changed the approach and moved to a format of running two, one day meetings a year; something we continued over the next few years. The first such event was held on June 24 1998 at Brunel University under the title "Simulation Software: Present and Future". The five speakers for the day were: Vlatka Hlupic (Brunel University), Steve White (British Airways), Mike Pidd (Lancaster University), Tony Waller (Lanner Group) and Ray Paul (Brunel University). Attendance at these one-day meetings was generally between 30 and 40 with the record attendance of over 70 being at a joint meeting with the UK Simulation Society organised by Susan Howick from the University of Strathclyde in April 2000: "Discrete Event Simulation and System Dynamics: Never the Twain Shall Meet?" The paradox being that modellers from both camps did actually meet in what was an early foray into comparing these two worlds and how they might work together.

A particular facet of the study group was the involvement of both academics and practitioners. Indeed, many of the meetings included speakers from both worlds. Finally, just to note that due to a change in OR Society naming conventions, the Simulation Study Group was renamed the Simulation Special Interest Group; the name it still carries today.
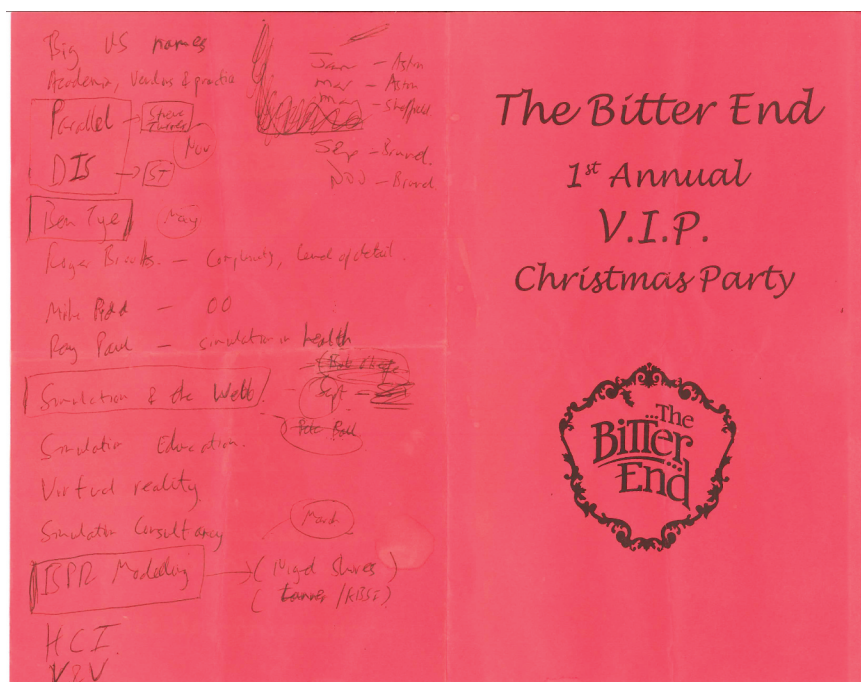

Figure 1. Study Group Plans on a San Diego Bar Menu.

3. The first simulation workshop (2002)

It was around the turn of the century when Brian Lehaney, then Chair of the OR Society's Events Committee, suggested to us that we should run a simulation conference. This was presumably as a result of the successful Study Group events we had been running. Stewart's first reaction was to say "no". Simon's was "yes!!!" After all, there is a huge difference between running occasional one day events, for which there was no charge, and running a full blown conference. Stewart cannot remember what persuaded him to go ahead with the conference, but he suspects that it was Simon's more optimistic outlook on life! So somewhere early in the year 2000 we decided we would give it a go. And so what became known as the "Simulation Study Group Two-Day Workshop", or "Simulation Workshop" for short, was scheduled for 20–21 March 2002. The front cover of the proceedings for the original event is shown in Figure 2.

We had some discussion about whether to call the event a conference, but in the end we went for the "workshop" title. This reflected our view that the event should create an environment where academics and practitioners, from those just starting out to the well-established, shared and discussed ideas about simulation.

Over the two years of planning for the 2002 conference we developed a number of guiding principles that set the tone for future Simulation Workshops. First, we were insistent that the conference should be held in hotel type accommodation and not using student halls. If we wanted practitioners, senior academics and international visitors to attend, we knew they would expect a better quality of accommodation. We had also been tainted by an earlier experience of a conference using student accommodation; Simon woke to find a faulty spring had caused his mattress to attach itself to his knee! Stewart had slept on a similarly uncomfortable bed in the same facility, but had managed to avoid being physically assaulted by his mattress!

Second, we wanted to hold the conference in a facility that was largely, if not fully, dedicated to our delegates. We wanted people to know that if they spoke to someone else at dinner or in the bar, they were almost certainly attending the Simulation Workshop as well. The focus should be on an intensive two days for sharing and discussing ideas.

Third, we decided that all presentations should have published and reviewed papers associated with them (although there were two presentation only papers at the first conference). In doing so we followed the practice of the Winter Simulation Conference at the time. It had the benefit of helping to assure the quality of the papers presented and created an archival record of the conference. For the academics, it had the added advantage of developing a first draft of a future journal paper. However, over time we found that for some practitioners the requirement to write a paper made it difficult for them to participate in the conference as they had little time or incentive to write-up their work. As a result, this requirement was relaxed a little for later Simulation Workshops
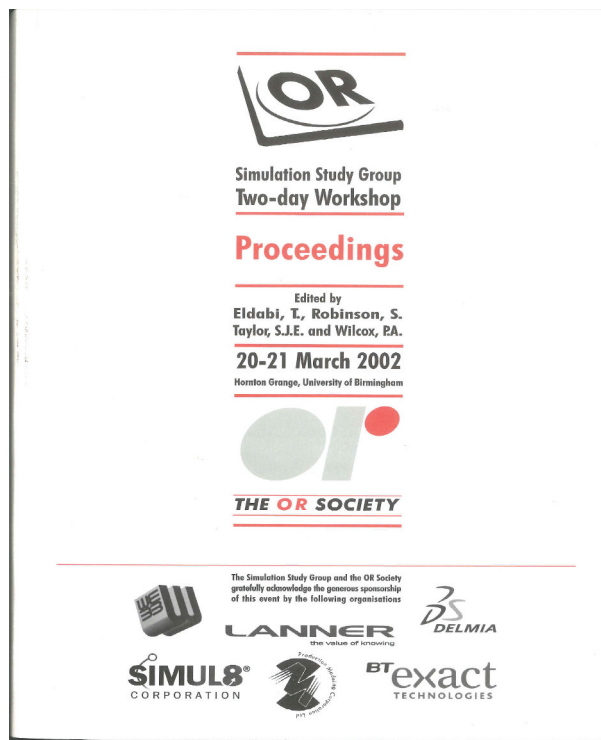

Figure 2. Proceedings cover for the first simulation workshop.

when "practice papers" were introduced; these only needed to be three pages in length. For more recent conferences this has been relaxed further and the Simulation Workshop does now have some presentation only papers. Of course, the technology for publishing the proceedings has changed over the years, moving from paper only, to CD, to a memory stick, and most recently to on-line.

Fourth, we wanted an international keynote speaker. For 2002, Professor Richard Nance from Virginia Tech agreed to give the keynote address. Professor Nance, a leading international figure in simulation research, spoke on the "Simulation Research Agenda: Hope, Hype and Hyperbole". In doing so he identified some of the grand challenges facing simulation at the time.

Fifth, we wanted strong representation from the simulation practitioner community. One way in which we aimed to achieve this was to invite companies to sponsor the event for a relatively low fee. In doing so they were highlighted in the conference advertising, documentation and proceedings. They were also given space in the exhibition area during the conference; something which has become a focal point for gathering during refreshment breaks. Although we do not have detailed evidence, our sense is that we have achieved a close to 50:50 split of academic and practitioner attendance.

Finally, we wanted to keep the registration fee to below £300. Something we maintained for many years and only recently has it crept above this level due, of course, to the ongoing impact of inflation.

And so we launched the first Simulation Workshop in the spring of 2001 with an announcement and a call for papers. Everything had to be designed from scratch: the call for papers, the author instructions, the review process, the proceedings layout, the programme for the conference, the planning timetable, etc. We also had to find a location for the event. With some guidance from Chris Barrett, the OR Society's conference organiser, we chose Hornton Grange on the edge of the Birmingham University campus. It provided good quality en-suite accommodation and a dedicated conference facility which could provide an exhibition/refreshment area and two rooms for presentations.

We arrived at Hornton Grange on March 20 2002 with no clue as to how well the next two days would progress. Our main memory of that first conference was the opening session. We had 64 expectant delegates (we think) in the main meeting room waiting for the conference to start. Just before we opened the proceedings we remember a distinct air of "what on earth have we done!"

4. Ten simulation workshops: 2002–2021

Suffice it to say that the 2002 "Simulation Study Group Two-Day Workshop" seemed to go rather well. So much so that the delegates suggested we should do it again. On further investigation the general view was that doing this on a biennial (every two years) basis would be better than doing it every year; partially to keep our sanity in organising the conference, but also to make it more of an event and to ensure the world of simulation had moved sufficiently forward between conferences.

After a six month break, we went ahead and started planning for a 2004 conference, again to be held at Hornton Grange. The "2004 Operational Research Society Simulation Workshop" used the shortened title of SW04 for the first time; a naming convention that has stuck ever since.

Among the nine "in-person" conferences that have been held, SW04 still holds the record for the best attended with 85 delegates, although this was nearly beaten in 2018 when 84 delegates registered for SW18. (As an on-line conference, SW21 beat these records by some margin, something we will comment on later.) SW04 was the only time that we had to resort to running three parallel sessions during part of the conference in order to fit in all the presentations over the two days. The number of delegates presented us with a problem as the main conference room at Hornton Grange was not large enough to seat all the attendees. We may have sneaked some extra chairs into the conference room! It was for this reason that we moved the 2006 conference to a different location (Ashorne Hill Conference Centre near Royal Leamington Spa). SW04 was the only conference at which we did not have a panel discussion; instead we opted for a plenary session given by Brian Hollocks entitled "Still simulating after all these years. Reflections on 40 years in simulation". Brian submitted this as a standard paper, but we thought it was of sufficient interest to be delivered as a plenary, and it proved to be so.

Tables 1–3 summarise the details of every Simulation Workshop conference from 2002 to 2021. Table 1 provides details of the conference location, chairs, committee members, the number of papers and attendance. Table 2 lists the keynote talks and Table 3 gives details of the panel discussions at each conference.

Simon and Stewart chaired the first five conferences, eventually handing the reins over to Benny Tjahjono who, at the time, was at Cranfield University. Benny ably chaired SW12 and SW14 after which Christine Currie and Tom Monks co-chaired

Table 1. Summary of simulation workshop conferences.

Year	Location	Chair(s)	Key committee roles	Papers	Attendance
2002	Hornton Grange, Birmingham	Stewart Robinson Simon Taylor	Tillal Eldabi, Pauline Wilcox	26	63
2004	Hornton Grange, Birmingham	Stewart Robinson Simon Taylor	Les Oakshott, Sally Brailsford	37	85
2006	Ashorne Hill Conference Centre, Royal Leamington Spa	Stewart Robinson Simon Taylor	Sally Brailsford, Jeremy Garnett	33	76
2008	Abbey Hotel, Redditch	Stewart Robinson Simon Taylor	Kathy Kotiadis, Christine Currie	34	84
2010	Abbey Hotel, Redditch	Stewart Robinson Simon Taylor	Murat Gunal, Benny Tjahjono, Sally Brailsford, Antuela Tako	31	73
2012	Abbey Hotel, Redditch	Benny Tjahjono	Cathal Heavy, Stephan Onggo, Durk-Jouke van der Zee, Thomas Monks	32	74
2014	Abbey Hotel, Redditch	Benny Tjahjono	Cathal Heavy, Stephan Onggo, Durk-Jouke van der Zee, Thomas Monks	28	60
2016	Ettington Chase Hotel, Warwickshire	Tom Monks Christine Currie	Anastasia Anagnostou, Katy Hoad, Martin Kunc, Anastasia Gogi	28	71
2018	Ettington Chase Hotel, Warwickshire	Tom Monks Christine Currie	Anastasia Anagnostou, Rudabeh Meskarian, Duncan Robertson, Masoud Fakhimi, Tom Boness	21	69
2021a	Planned for Burleigh Court, Loughborough, but run on-line	Anastasia Anagnostou Antuela Tako	Masoud Fakhimi, Duncan Robertson, Tom Boness, Lucy Morgan, Durk-Jouke van der Zee, John Fowler	34	131

[a]The 10th Simulation Workshop was originally planned for March 2020, but the UK went into lockdown due to the Covid-19 pandemic a matter of a few days before the event was scheduled. As a result, the conference was postponed and then rescheduled as a virtual event for March 2021.

Table 2. Keynote talks.

Year	Keynote Speaker	Title
2002	Richard Nance (Virginia Tech)	The simulation research agenda: hope, hype and hyperbole (or whence, wherefore and whither?)
2004	Paul Fishwick, University of Florida	Modelling: taking it to the next level
2006	John Morecroft (London Business School)a	Representation and simulation – an information feedback view
2008	Brian Hollocks (Bournemouth University)	Intelligence, innovation & integrity – K D Tocher and the dawn of simulation
2010	Charles Macal (Argonne National Laboratory)	The future of agent-based modelling and simulation
2012	Shane Henderson (Cornell University)	Real-time ambulance-fleet control via an amalgam of simulation, optimisation, and statistics
2014	Barry Nelson (Northwestern University)	Why good simulations go bad
2016 (a)	Alexander Verbraeck (Delft University of Technology)	Data driven simulation
2016 (b)	Sally Brailsford (University of Southampton)	Hybrid simulation: the best thing since sliced bread, or just a fad?
2018 (a)	John Fowler (Arizona State University)	Personal reflections on the evolution of simulation over the last 20 years
2018 (b)	Russell Cheng (University of Southampton)	Visual representation of simulation results
2021 (a)	Young-Jun Son (University of Arizona)	A DDDAMS-based surveillance and crowd control via UAVs and UGVs
2021 (b)	Susan Sanchez (Naval Postgraduate School, Monterey)	Data farming: the meaning and methods behind the metaphor

aStephen Chick (INSEAD) was originally lined-up as keynote speaker but could not join us due to a sporting injury.

Table 3. Panel discussions.

Year	Chair	Panellists	Topic
2002	Stewart Robinson	Dick Nance Mike Pidd Ray Paul Simon Taylor	Model reuse (Robinson et al., 2004)
2004	*No panel discussion*		
2006	Mike Pidd	Not recorded	Simulation in health
2008	Michael Pidd	Stephen Chick Mark Elder Shane Kite Ray Paul	Simulation optimisation: the best thing since sliced bread
2010	Michael Pidd	Peer Olaf Siebers Charles Macal Jeremy Garnett Dave Buxton	DES is dead, long live ABS!
2012	Sally Brailsford	Stewart Robinson Shane Henderson Claire Cordeaux Shane Kite	The practice of simulation: useful, in theory? The theory of simulation: practically useless?
2014	Simon Taylor	Barry Nelson Mark Elder Ken McNaught Christine Currie	Simulation analytics: the future of simulation?
2016	Christine Currie	Stewart Robinson Simon Taylor John Fowler Sally Brailsford	Celebrating 10 years of the Journal of Simulation
2018 (a)	Kathy Kotiadis	Sally Brailsford Antuela Tako Stewart Robinson Christina Phillips Mark Elder	Discussing the challenges of stakeholder involvement and how to overcome them
2018 (b)	Peer Olaf Siebers	Peer Olaf Siebers Antuela Tako Dave Buxton Tom Monks Kim Warren	Model development strategies: from a copy/paste mentality to truly innovative approaches
2021	Simon J E Taylor	Son Young-Jun Susan Sanchez Oliver Rose Juergen Branke	Artificial Intelligence and Simulation: Friend or Foe?

the next two conferences. Anastasia Anagnostou and Antuela Tako took over for SW21. Key committee roles covered the delivery of the programme and proceedings, publicity and bringing together the poster session. From the very first conference the posters aimed to encourage PhD student participation, but since 2014 they have provided an opportunity for other delegates to display their ideas before they are sufficiently developed for a full paper. More recently there has also been a prize for the best poster.

The number of papers has varied over the years, but has remained between 20 and below 40. More recent conferences have had more keynote and plenary events, as well as tutorial sessions generally on the day before the main conference starts. Attendance for the in-person conferences has varied from 60 to 85. One notable feature is that the number of attendees has always been at least double the number of papers, which suggests there is very high interest in the conference without attendees feeling the need to make a presentation.

From the beginning we sought to bring in a keynote speaker from overseas. This was not only beneficial in terms of bringing in some of the leading researchers in the field of simulation, but also a means of connecting them with the UK simulation community. We are very grateful to the willingness of these speakers to participate in and support the Simulation Workshop conferences. They have certainly brought to our attention some current and exciting topics in simulation.

In terms of keynotes, 2006 was probably the most memorable from a conference organisers point of view. Stephen Chick (INSEAD) was originally lined-up as the keynote speaker. However, he contacted us only a couple of weeks before the conference, very apologetically, to say that he had broken his leg playing ice hockey and so was unable to attend. John Morecroft (London Business School) stood in at the very last minute and gave a very memorable talk on system dynamics. We remain grateful to John for rescuing us and also to Steve who subsequently wrote-

up and published his never delivered keynote address as a paper in the inaugural issue of the Journal of Simulation (Chick, 2006).

With the exception of 2004, we have always held a panel discussion on the second day of the conference. These have led to lively debates on current issues in simulation. One of the most memorable was in 2010, following Charles Macal's keynote on agent-based simulation (ABS). The title of the discussion was "DES [discrete-event simulation] is dead, long live ABS!" The panellists went on to write-up their discussion for the Journal of Simulation (Siebers et al., 2010). Sally Brailsford later responded with her paper "Discrete-event simulation is alive and kicking!" (Brailsford, 2014).

The Simulation Workshop started as a DES conference, but has increasingly encompassed system dynamics, ABS and hybrid simulation. The keynotes from John Morecroft (2006) and Charles Macal (2010) had a significant impact in introducing the DES community to these alternative simulation approaches.

We used the 2008 conference to celebrate the 50th anniversary of the first simulation software. The General Simulation Program (GSP) was developed by K D Tocher at the United Steel Companies in the UK in 1958. Having worked with Tocher, we asked Brian Hollocks to give the keynote address; an excellent history of Tocher's contribution to the simulation field. A highlight was having Tocher's widow, Charlotte, and their two children in attendance. It took Stewart six months to track the family down. Charlotte, then aged 90, gave a memorable speech about her husband's work. It included a story of the press being very excited to interview Tocher because of his work on "computer stimulation!" At SW08 we announced the launch of the K D Tocher Medal for the best paper in the Journal of Simulation, making the inaugural award in 2010. Charlotte returned to SW10 to give the award to Kathy Kotiadis.

We have always sought to ensure the conference gains international recognition. Apart from international keynote speakers, we have benefitted from international participants from Europe, Asia, Africa, the USA and as far away as Australia. Over time we have also gained "in-cooperation" agreements from the following international societies: the INFORMS Simulation Society, ACM SIGSIM and the Society for Modelling and Simulation International.

Finally, in the long line of memorable happenings, we never expected a Simulation Workshop (SW20) to get postponed due to a global pandemic and for the conference to go fully on-line as it did in 2021. Certainly the technology would not have been available in the early years to support such a virtual event. Thanks to the dedication of the conference team it was great that the "show carried on" despite the circumstances. Indeed, the 2021 conference was a huge success with a record attendance of 131 and many innovative features aimed at maximising engagement in a virtual environment, for example, networking breaks, a careers discussion, an interview on diversity with a senior academic, a modelling competition and a prize for the best paper.

5. And so to the journal of simulation

The story of the Journal of Simulation is closely aligned with the Simulation Workshop and a late night conversation with Ray Paul. During SW04 Ray suggested that, based on the success of the conference, the growing UK simulation community and the need for more journals on simulation, Simon and Stewart should start-up a new Operational Research Society journal. Our reactions were "no" and "yes!!!" (the reader can guess who said what!) Stewart's reservations were the huge difference between running a conference and setting-up and editing a journal from scratch. Stewart cannot remember what persuaded him to go ahead with the journal, but he suspects, once again, it was Simon's relentlessly optimistic attitude! (If you think you have read this before, you have, at the start of section 3 in relation to setting-up the conference.) This once again shows the impact that Ray Paul has had on us and on the simulation community.

And so the Journal of Simulation was born. After two-and-a-half years of negotiation and work, we launched the first issue of JOS at a special event in December 2006 during the Winter Simulation Conference in Monterey, California.

6. Conclusion

So "what have we done?" First and foremost it is not what we have done; the success of the Simulation Workshop has been the result of many contributions from those that have helped organise the events, through keynote speakers, special guests, presenters, panellists, to attendees. One of the greatest facets of the Simulation Workshop has been the way that it brings a community of academics and practitioners together every two years. As we had originally envisioned, the conference has a workshop feel where participants share and discuss ideas freely. It has become the centre piece of a very active UK simulation community. But more than that, an opportunity to showcase that community's work to the wider world, and for the wider world to input to the development of simulation in the UK.

We were once asked if we would like to see the conference become much bigger. After all, that would surely be a measure of its success. After reflecting on this for a while, we realised that the size of the conference (60–90 delegates when held in-person) was the

reason for its success. Attendees are pretty much able to meet and talk with every other attendee during the two days, which is the bedrock of creating a community. So growing larger may not signify success.

Of course, the virtual conference in 2021 was an exception and exceptional in many ways. With 131 delegates it certainly broke the attendance record by some margin. One major advantage of running the conference on-line was it reduced the cost and effort of attending, and so it enabled a number of people to attend from around the world who would not normally have been able to travel for the in-person two-day event. What was missing was the level of networking and community building that we normally experience. As for the future, maybe there is a role for a hybrid in-person and on-line event which could capitalise on the benefits of both environments?

In closing, one thing we do not know is whether anyone has attended all ten conferences. Do identify yourself if you have. Simon and Stewart have both missed one Simulation Workshop (Stewart in 2010 and Simon in 2012). What we do know is that although it has been hard work, it has been rewarding and above all it has been fun!

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Disclosure statement

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