



SCHOMS on the international stage

Huge challenges of an AI future

VR and AR is getting real

**SCHOMS**

[www.schoms.ac.uk](http://www.schoms.ac.uk)

# connections

expertise creativity enhancement technology community support

no12 summer 2020

## Log in for SCHOMS2020

All the plans had been made to hold a memorable SCHOMS 2020 conference in Edinburgh in May to mark our 20th anniversary.

However, the year has turned out to be memorable for very different reasons.

We could not have foreseen the extent to which the Covid19 pandemic was going to change our daily lives.

2020 was shaping up well for us after ISE in February (see page 3). We had planned a series of follow-ups and a programme of face-to-face sponsor engagement as well as the conference itself. But everything came to a halt.

It's extremely doubtful that we will be able to set a new date for the conference this year. We are looking at our options but it's likely that we will defer it for 12 months, holding it in the same place, same time next year.

Our workplaces would have taken a dim view of the conference being changed to sometime in the coming months. By this time next year, we hope that social distancing and travel requirements will have returned to some form of normality.

It is important in these difficult times, though, to stick together as a community and continue to share ideas.

To that end we are going to have a short online conference on Thursday 9 July which will include our AGM and an update on future plans as well as member presentations.

We will be looking for your views on how SCHOMS



**Chair Mark Dunlop on a memorable year for the wrong reasons and on taking this year's conference online**

can support the community and there will be a survey shortly to get your thoughts. Your input will prove invaluable in making sure our planned activity delivers on your needs.

We hope to run a series of short conferences during the next year with themes relevant to the evolving landscape culminating in our face-to-face conference around May 2021.

However we recognise that sponsors and suppliers cannot be as easily accommodated in a virtual conference and the suppliers' exhibition at the annual conference is fundamental to our financial standing. We are having discussions with them to see how we can work more closely over the coming months. Not having the conference this year has had an impact on our finances but we have reserves and we continue to monitor our outgoings. We are confident SCHOMS is in a strong position to continue to operate to and deliver to our members.

We also continue to keep in touch with our partners both at home and abroad (see pages 2 and 4) to prepare to face the new future together.

In the meantime, look back through this issue to that distant SCHOMS19 world in Bournemouth when social distancing was an unknown phrase and no second thought was given to travelling.

With your help and support, we will continue to reconnect and rebuild in both established and innovative ways. Stay safe.

**Short online conference announced for Thursday 9 July which will include AGM, an update on future plans and member presentations**

# Lessons from American experience



Vice-chair Caroline Pepper represented SCHOMS at the Consortium of College and University Media Centers (CCUMC) annual conference in New York last October. The conference – ‘Techsploration on the Hudson’ – was hosted by Marist College, a comprehensive, independent institution

on the banks of the historic Hudson River. “Its green campus provided an excellent backdrop to engage with sponsors and delegates from higher education institutions around the US,” Caroline said. “It also provided the opportunity to raise the international profile of SCHOMS and engage with the CCUMC Executive Board to discuss collaboration and increased engagement between organisations.” Here she writes about her visit.

CCUMC has close to 700 members across the US, incorporating about 180 institutions and 30 corporations. Its mission is to provide sound leadership and a forum for information exchange.

The conference – open to both delegates and sponsors to provide a balanced perspective on delivering technical solutions in higher education – included a range of presentations, workshops and concurrent sessions with titles including:

- ▶ Accessibility and the role of the Media Centre
- ▶ Immersive synchronous lecture halls
- ▶ Running a real-world proof of concept
- ▶ Overcoming faculty disincentives
- ▶ Using data to socialise strategy technology decisions

In her keynote address, Helen Rothberg, Professor and Strategy, quoted, ‘everything I know about leadership I learnt as a bartender’.

She identified technology as the harbinger of change, the stability and the disruption in what we can do and how we do it. Sometimes we were the

**// The conference highlighted the importance of building partnerships and the evolution and development of technology focussed landscapes //**

usher of change, sometimes the implementer, sometimes the receiver.

“As the interpreters of this strange technological language you are welcomed and dreaded in equal measure,” she said.

Similar to the SCHOMS facilitated sponsor/delegate workshop, CCUMC ran a chaotic yet fun and engaging Design Thinking activity.

Educational attendees were divided into groups and asked to compile lists of likes and wishes about their relationships with vendors and manufacturers – who were invited to do the same about the institutions. Both groups then picked out the most valuable and important.

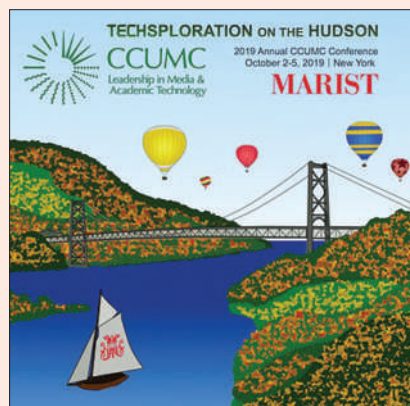
The most important ‘like’ was a desire from both parties to build partnerships rather than just a relationship with a salesperson or customer.

Other wishlist items included the ability to purchase extended warranties, price and aftersales support.

Notable among the range of professional development workshops was ‘Adapting and Thriving, a HE Survival Guide’ which considered guiding change, mentoring, building relationships and professional evolution. It was an interesting reflective exercise.

There were tours of not only Marist College learning and teaching facilities but also neighboring colleges including the prestigious Vassar College, the Culinary Institute of America and Bard College.

The tours highlighted the issues and



Marist College is grounded in the liberal arts and home to numerous Centres of Excellence in New York state.

In his welcome address, Thomas Wermut, Vice President of Academic Affairs and Dean of Faculty, provided a fascinating insight into the history of the college and region.

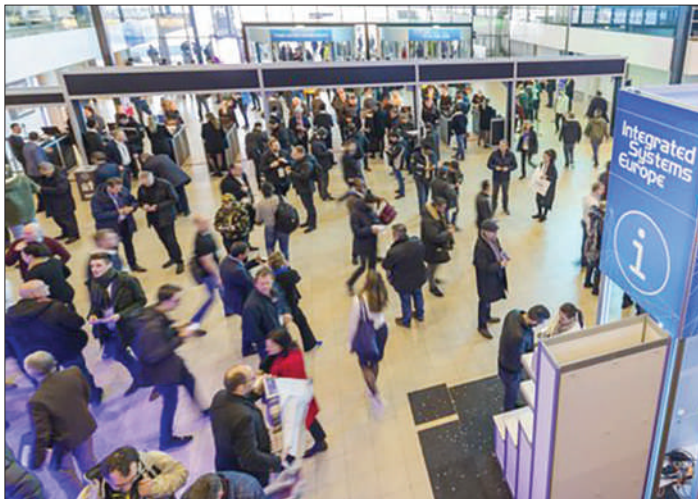
The college was born when the Marist Brothers came to New York's Hudson River Valley just over a century ago to train young men to continue the brothers' vocation as great educators.

It is close to the home of Franklin D. Roosevelt national historic site which includes a library and museum, and various historic mansions along the river including the Vanderbilt estate at Hyde Park.

similarities experienced in both UK and US higher education where there is still a disconnect between the environment students want to ‘learn’ in and College ‘teaching’ provision

There is a need for more collaborative learning spaces, but this requires a culture change.

It was not only a privilege and a valuable experience to attend the conference but highlighted the importance of building partnerships and the evolution and development of technology focussed landscapes we all face in higher education to support students on their pedagogical journey.



# SCHOMS features in ISE headline session



**SCHOMS provided the sponsorship for 57 members from 41 HE institutions**

**to visit ISE – the last to be held in Amsterdam – in February.**

The SCHOMS delegation explored 1,300 exhibitors across 15 halls showcasing AV creative solutions and integration experiences.

They also attended a range of presentations including;

- ▶ designing for today's technology solution
- ▶ active versus passive learning, and
- ▶ creating the classroom of the future.

A SCHOMS, EUNIS and AVIXA partnership – the Higher Education AV Conference – launched the event, focussing on how AV technology can impact people's experiences.

A diverse range of speakers included Dom Pates of SCHOMS member City University.

In his session 'The Holographic Academic: a speculative learning design workshop', Dom – Senior

Educational Technologist in Learning Enhancement and Development – challenged delegates to come up with their own design uses for the technology in higher education.

"This provided the opportunity to balance blue sky thinking with the technical challenges of implementation, which is where I asked the thorny question of how we timetable such an activity," said SCHOMS attendee Caroline Pepper.

Other topics included the AV and accessibility challenges posed by the new guidance for universities, which will require time and resource to ensure compliance.

A separate presentation from the Norwegian University of Science and Technology about learning and teaching in a distributed environment showcased innovation and collaboration from multiple stakeholder perspectives.

"ISE is always a fantastic event to network with colleagues, partners and our valued sponsors who have become great friends," said Caroline.

"This year the SCHOMS executive met with Sarah Joyce, Chief Global Officer and David Labuskes CEO of



▶ Integrated Systems Europe (ISE) is the largest AV systems integration show in the world.

▶ It began in Geneva in 2004 with around 3,500 attendees.

▶ This year - its swansong in the historic and iconic city of Amsterdam - it attracted 52,000 attendees.

▶ In 2021, ISE will relocate to the Fira de Barcelona exhibition complex

AVIXA to further strengthen our partnership. "

At the same time, ISE provided its usual paradox of rhetoric, she added. "On the one hand, it promoted the AVIXA Women's Council panel discussion to support and empower women who work in technology and AV industries. On the other, visitors to the stand were attracted by a pole dancing female robot!"

The dedicated SCHOMS lounge provided respite from the vast expanse and visual audio chaos of the halls.

"In light of the current Covid challenges we need to carefully consider options for ISE Barcelona 2021," said Caroline.

**// ISE is always a fantastic event to network with colleagues, partners and our valued sponsors – this year we met with AVIXA to further strengthen our partnership //**



**SCHOMS19 welcomed two members from our Asia/Pacific region sister organisation AETM – Vice President Emerson Pratt, ICT Manager for the Dental School at the University of Otago in New Zealand, and Kevin Knox, Learning Systems Manager at Australian National University. As well as providing an update on AETM activities, Emerson spoke on how he changed the structure of a traditional project office when it came to planning for a major development at his institution. Kevin gained the opportunity to speak to SCHOMS members after being awarded an AETM scholarship for his presentation to their annual conference. He shared the methods he used to bring network-centric IT change to his university.**

AETM have 55 HE members across Australia, New Zealand and the Asia Pacific region, including Samoa, Singapore and Japan, Vice President Emerson Pratt told SCHOMS19.

They had also welcomed 12 non-university members – “a couple of museums and some of the bigger high schools in Australia.”

All types of issues were discussed by members on the AETM website forums, which it was hoped would be opened up to include SCHOMS members as well.

Emerson explained how AETM operated its own awards – for Woman in AV and Young AV Professional (in the first five years of their career) .

He added that AETM ran scholarships to SCHOMS and CCUMC and had also produced their own audio visual guidelines, which were free to download.

## Networks open up new doors

AETM scholarship winner Kevin Knox told SCHOMS19 how he delivered a 42-room refresh programme by introducing a major management process around the Pedagogy Space and Technology (PST) model (Radcliffe 2008).

He said he knew the future of infrastructure was all about network-centric models so he built relationships with the network manager and investigated AV standards.

“I had a look at where we were, conducted focus group meetings with academics and students, asked them all what was going well, what could be improved and to provide one aspirational component with pedagogy, space and technology.

“I collated it all and created a formal SWOT analysis document.”

But most important was the execution of the strategy, Kevin said. “Without people, the strategy does not evolve.

“I did a skills gaps analysis and presented it to Chief Information Officer, saying I would harness IT infrastructures

including helpdesk, VM servers and the IT environment. I was given money to take on people for 12 months and prove I could change this around.”

Kevin described his strategy as network-centric and client-focussed, with an emphasis on being responsive to calls. It included customer feedback software integrated within ServiceNow and Cloud-based.

He said as a result of his strategy, he had inherited another 40 rooms which were going to be put on the network.



## AV/IT inclusion helps to transform project planning

A ‘CHANGE of mythology’ about project planning was required on a major university development in New Zealand, according to Emerson Pratt – and that meant bringing together a geek, a dentist and a builder.

As newly-appointed ICT Manager for the Dental School at the University of Otago – the southern hemisphere’s largest dental school and practice – he decided to change the structure of a traditional project office.

The key part was to get away from the idea that construction ran projects, he said.

“Our building team is amazing at building but has no idea about IT, no idea about AV and certainly no idea about being a dentist.”

Emerson said the process had to change because, while buildings might meet physical needs, they

might not meet user needs. “They are designed by builders for the cheapest price and while you consider your users, you don’t really know your users – they’re not part of the project. You know them from about 40 hours of meetings you may have had at the start of the project but you weren’t living and breathing with them.”

So Emerson brought AV/IT, customers and builders together in the same project planning office. “I like to call the team the Geek, the Dentist and the Builder,” he said.

Each project manager had their specialty and user groups. “For example, I had an X-ray team made up of dentists and most importantly, our students and our dental nurses. The day-to-day dental nurse perspective was completely different to that of the dentists and academics.”

Having the project officers under the same roof was key, Emerson said. “You got to hear the little details that you don’t get in meetings. We certainly gained a better understanding of our users and what they wanted.”



# Tech future poses 'huge' challenges

Workplaces of the future are going to be transformed by automated artificial intelligence (AI) technologies as people increasingly interact with ever-smarter machines, Professor Debbie Holley told SCHOMS19. And delegates were given a taste of things to come when they were split into groups and asked to use green screen technology. It was all part of a 'Tech Futures' workshop devised by Debbie – Professor of Learning Innovation at Bournemouth University – pictured (far right) with her team of managers, academics and technologists.



HIGHER education is facing huge change in terms of what it prepares students for, Professor Debbie Tolley told SCHOMS members.

"Sixty five per cent of UK children who started primary school last September will work on jobs that aren't known to us at the moment. At the same time, 73% of undergraduates come from 'non-traditional' backgrounds and we've got a far more diverse workplace.

"Technology is changing with the Cloud, mobile, social media, AI, CRN systems, big data – 90% of the data in the world was created in 2018.

"These technologies and human-machine interaction are going to change the skills required of human workers. The challenge for educators is to shift our own attitudes and practices and to work with students to create new ways of working."

With mobile phones, internet and smart phones, students can learn any place, any time, Debbie said. "We have to engage our students. We need to have a whole range of technologies to help them become digital makers. That's what our employers really want."

ACCORDING to an OU annual report these are the latest examples of learning innovations:

- ▶ 'playful learning' – a higher education version of the primary school development;
- ▶ learning with robots;
- ▶ 'decolourising learning' – having an inclusive curriculum;
- ▶ drone-based learning;
- ▶ learning through wonder;
- ▶ action learning;
- ▶ playspace learning.

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DELEGATES were tasked with thinking about emerging technology trends in their workshop groups and to create a one-minute elevator pitch using Bandicam software, a webcam, a pop-up green screen and a laptop or PC.

Dave Fevyer, Innovation and Technology Manager at Bournemouth University, explained:

"We got chroma key green screen technology because we want to see how academics might use it to create short videos.

"There's already been work going on around lecture capture and the flipped classroom. We've also seen how it could be a major part of content delivery to the student through video in blended learning and distance learning.

Dave added that Panopto and other tools like VLEs achieved a certain degree of engagement and could have the lecturer visible as well as heard, but didn't look overly



natural. "While you can get away with it if students are viewing on a desktop, it becomes more difficult when they're viewing on mobile phones," he said

"Often there's a desire not to have the lecturer filmed because it impedes on the screen and forces everything down to a small box.

"As an alternative, you can place

the lecturer inside the content. There are still certain limitations on space but it does open up more of that mobile view and make it more effective."

He said it increased engagement for the student because it gave a more professional look – "like the sort of content they would be consuming in other areas of life."

But one of the difficulties was that not every member of staff might have the time or the motivation to learn how to use the webcams and laptops that they had set up with pop-up green screens.

# Simply get straight to the point

**In his own inimitable style, Jon Moon – a leading authority on document clarity – gave delegates tips on how to convey reports and talks in a way that others instantly grasp and which hit the right notes. Jon, director of Clarity and Impact, explained: “Apparently, people act on facts. So, to persuade, we simply drown them with facts. . . tables, analysis, graphs. No. Discover how to get to the nub of your message. Result: you save time – yours and others. And you influence and impress.”**

DELEGATES were asked to imagine they were writing a report that was due out and about which they had to give a talk in a couple of days.

“You’re thinking ‘am I saying what I need to say?’ What to do is role-play a 30-second summary,” Jon advised.

“Grab someone and say ‘force me to verbally summarise this report to you in 30 seconds’.

“Don’t choose people to do this who report to you. They’ll be flattering, obsequious. You want somebody who’s going to be tough on you.

“Sounds simple, obvious and basic but it’s the most important bit in the training today.”

Unlike an elevator pitch – “that’s done by cheesy salespeople in a cheesy voice, lasts five seconds and it’s aimed at getting a meeting in your diary afterwards” – the summary is 30 seconds, meant to inform not tease and aims to avoid a dull meeting.

“Two things happen when you summarise verbally. The first is – you will talk normally. Simple language comes out when people talk.

“When people write, weird language comes out like ‘We must facilitate the implementation of the enhancement of greater cross-divisional collaboration amongst our key stakeholders’. But when we talk we say ‘we need to talk to get our people to work together better’.

“The second thing that happens – you’re forced to get to the point.

“If I’m listening to your summary and you say: ‘Jon, step back to five years ago when we rolled out a new



system’. I’ll say ‘Stop. I don’t want a history lesson. Get to the point’.

“So you say ‘we’ve got four options going forward.’ I’ll say ‘Stop. This is not an Agatha Christie novel. I don’t want you to describe four suspects, sow a few red herrings, kill two off halfway and give me the final answer on the back page. Get to the point.’

“So then you say ‘OK, I want £10,000 to spend on system XYZ to help us work together better’.

“Good start. But it’s five seconds not 30. We’ve been left with too many unanswered questions.

“So I bug you with questions. Why system XYZ, not system ABC, what’s the do-nothing, how long would it take, what are the risks.’

“When it comes to the risks, use simple language. If you have to, explain that the person who wrote the software fell under a bus yesterday and will be off for three months, if longer the project overruns.’

“Then I’ll say ‘how long will it take’. You produce a Gantt chart, prepared in Powerpoint, university logo top right, arrows from left to right sweeping gracefully in corporate blue.

“I say ‘I don’t care about your Gantt chart, that’s what you know, it’s not what you need, put the chart away and answer the question. How long?’

“And you say ‘six months’ and I say ‘that’s it, didn’t need the Gantt chart for that, did you’.

“After I bug you with questions for 10 minutes you end up with 30 seconds of pure gold. And you shove that pure gold right at the top of the report, first three or four paragraphs.

“It’s even better for your talks. Come out with your 30-second summary at the start.

“Let’s say you’ve been allowed 20 minutes to present and 10 minutes for questions and answers. In those 20 minutes, they expect Gantt charts they don’t want to see, be reminded of background they already know, be told objectives that are usually obvious.

“Give them the 30-second summary, maybe 60, enough so they can decide whatever next is of interest to them and then shut up. How long does the meeting last? Five minutes.

“After five minutes, they love your idea and you’re out the door. Or they hate your idea and you’re out the door. I can’t promise they’ll like it but they’ll suss it out a lot quicker.

“When you start your meetings with this 30-second summary, you look professional, forward-thinking, focussed. Your meetings are much shorter. The people you’re chatting to, your bosses, they love you for it. This 30-second summary gives delegates choice. You don’t show your Gantt chart unless they ask to see it.

“The best way to improve a written report is to talk about it. It sounds very counter intuitive but it really works.”

**// When you start your meetings with a 30-second summary, you look professional, forward-thinking, focussed. Your meetings are shorter. People will love you for it //**

## 'The good news and bad news about talks'

**The bad news** – most talks are dreadful.

"With bosses we worry about what colour blue, what size font, they interrupt, they find typing errors, hijack and humiliate.

"With lunch and learns, we tell 'em what we're going to tell 'em, tell 'em, tell em' what we told 'em."

**The good news** – most talks are dreadful.

"The bar is really low," said Jon.. "If you do a half-decent talk, you'll shine.

"When I started talking at conferences, I was nervous because I thought of the other presenters were going to be la crème de la crème. No. Most of them are poor. And the worse they are, the happier I am."

## 'Think about everything you hate and don't do it'

"WE turn up to talks, we see people put a load of stuff on screen and we think 'oh god'. Then we're giving a talk and we go 'let's put a load of stuff on screen'. Try and do the exact opposite of what others do".

He described 'lunch and learn' as a tougher talk because the audience is not going to interrupt.

"It's a case of 'entertain me'. Also you've got eight things to say and you agonise over a theme to take you from one to the next."

His 'get out of jail card' was lists. "If you've got to give a talk on AV/IT, announce it as 'The five

myths of AV/IT' or 'Six things you don't know about AV/IT' or 'Av/IT in five numbers'. Hang what you want to say on that construct.

You can mix up long and short, the serious and jokes. You don't have to do wordy links.

But he advised against saying 'the 14 things you don't know about AV/IT'. "They'll think 'we're going to be here all day'. Go with seven things you don't know and if it goes well, come up with the other seven." using it in talks to bosses. "Don't say 'cost overruns in five numbers'. They'll think you're taking the rise."

## 'How to bore people stupid in the first 30 seconds'

"MOST talks at lunch and learn, training events, staff updates start with 'tell 'em what you're going to tell 'em; tell 'em; tell 'em what you've told 'em.' It's a well-known way of boring people stupid in the first 30 seconds."

Jon replayed the routine. "First, Pat of the presenting team will talk through the objectives behind the survey, what we hope to achieve and how we've reshaped those objectives in the light of feedback from key stakeholders. Then Chris will look at the methods, the questions we asked, and Les will look at the findings segmented between corporate retail, regulated and non-regulated, I will then return to look at lessons, themes and next steps'. At that point, everyone is thinking 'kill me now'.

"I prefer a different construct. What is your capture? What do you say in the first 30 seconds to make people go 'whoa, got my attention'.

"If I need to cover objectives, I will do it as a casual aside or put a twist on them. About an hour in, I'll say 'thanks for your question, you've made me realise, you thought today was about this, this and this, but what I haven't made clear, it's about that, that and that.'"

## 'Good slides won't save a bad talk and bad slides rarely ruin a good talk'

PEOPLE spend too long worrying about their slides and not enough time thinking about what they are going to say, according to Jon.

"You don't have to have something on the screen every time you do or say something. It's enough just to do it or say it.

"Some people tell me 'if I don't have slides, that creates a problem. I have no slides to hand out'. I say 'no, that solves a problem, you should never hand out your slides'.

"You can't do something that serves two masters. You've got to do slides that work as slides and a handout that works as a handout.

"If you give them a decent handout, they won't care about the slides. We really over complicate with the bad habits we've got into."

Jon clarified that he was not against slides, he was against script-on-screen and cliched photos - such as a teamwork message illustrated by a picture of a rowing eight.

He felt a colleague gave a better example at a lunch and learn on sales. "He clicked to reveal a screen-filling photograph of an Amazonian frog and said 'Sales, it's like kissing frogs, you've got to kiss a lot of frogs to find a prince'. Not a bad opening."

## A tip for nerves

START with a pause for six or seven seconds. "I'll sometimes get a felt tip pen, go to a flipchart and just pretend I'm trying it out," said Jon.

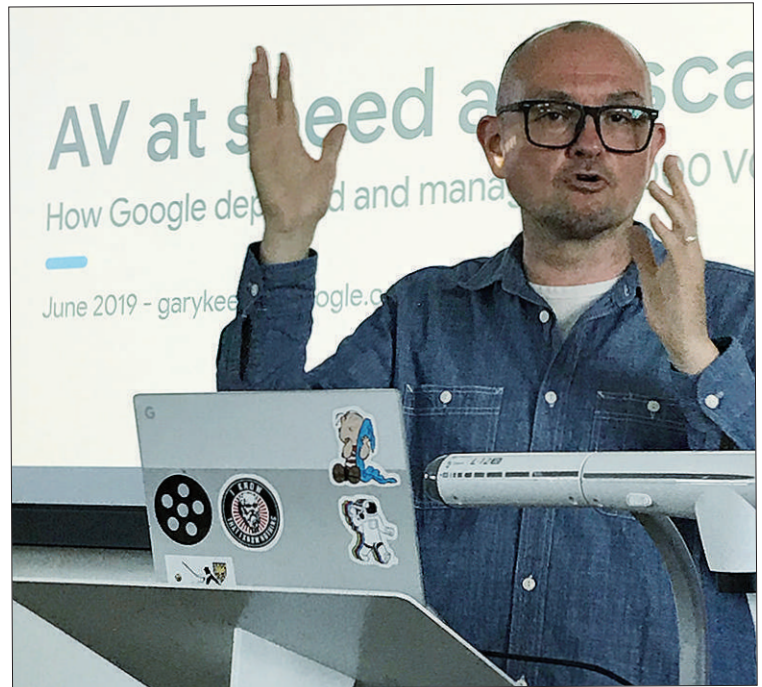
"When you present, you're nervous, because the audience are the emperors and you're the jester.

"When you go to the front and pause, you grab a bit of control back. It's my space, my time, my zone, I'll start when I'm ready.

"It also stopped me from doing what I used to do as soon as I hit the lectern, I'd start vomiting it out."

# Moving swiftly on in video conferencing

**Gary Keene (right) - Manager Audio Visual Operations, Google - runs a team of designers, project managers and UX-ers who focus on conference space. Google has 20,000 meeting rooms, all video conferencing enabled, with an average of 50 new rooms being added every week. In his talk 'AV at speed and scale', Gary spoke on how Google manages the design, deployment and support issues that arise from having a fleet of that size.**



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GOOGLE has about 100,000 full-time employees, about 150 offices in over 40 countries and is growing 20% year on year, according to Gary Keene.

"Our video conference use is growing 35% year on year and we're typically opening about 50 new VC rooms in any given week."

This was all run by a core team of about 60 full-time staff – a mix of project managers, product managers, designers, UX designers and UX researchers – with a simple AV aim:

"To deliver technology that makes Google uniquely productive."

Gary's real estate partners had an equally simple goal. "To make spaces that make Google uniquely productive."

"Having that clarity of vision when you're working at this scale and speed is absolutely critical."

"These numbers reflect a decision made about seven years ago to go all-in on video conferencing as our main means of real-time collaboration."

"Our culture and business goals are very closely aligned. We're a fast-moving, very flat organisation. We're problem solvers, have a strong engineering bias and we're deeply collaborative."

Gary said design was an **intuitive, replicable, equitable** room experience.

**// Having clarity of vision when you're working at this scale and speed is absolutely critical //**

Regardless of what was being designed, his team thought in terms of rooms.

▶ **Intuitive** "is all about your experience as a participant or as a presenter and should be as simple as possible."

▶ **Replicable**, "if we're working to scale, we want to have a product that we can roll out multiple times with as little running as possible."

▶ **Equitable** "is ensuring that the experience for all, regardless of gender, racial background and physical ability, is as good as it can or should be."

Google had 11 products in its catalogue for different types of rooms and standardised costs for 95% of what it offered.

"If you're a real estate construction manager working with us and you're setting up a new building or campus, you know what our costs are. You don't need to call us into endless meetings to work out budgets."

"On the deployment side, we use one vendor for purchasing, installation

and project coordination of all of our conference rooms. On some of our more specialised spaces, we work with a small range of vendors.

"About three years ago we were working with roughly 40 AV integrators, we just couldn't manage it. The variation in delivery and costs was just an ongoing pain."

"Any new hardware coming in has to be tested through a series of gateways with agreed success criteria and any new room type has to be built to these scales as well."

"For performance and availability reasons, we have a number of products that are manufactured to our own designs. If you want to move a product through this process, you go to a product manager."

"Our 11 products are divided among five product managers. The product manager drives the system and is responsible to the customer for the performance."

"From an AV perspective, we know it's slightly unusual, but if you look at what we do as an organisation – software and increasingly hardware provision – all we've done is take the existing Google way of managing products through their life cycle and apply it to anything."

**// Any new hardware coming in has to be tested through a series of gateways with agreed success criteria and any new room type has to be built to these scales as well //**



# Examples from the Google catalogue

## Conference room

"If a business owner within Google wants another meeting room, the typical response would be 'it will take 10-12 weeks and cost £7,000.' That's too expensive and too slow. We recognise the speed with which our organisation is growing and changing and we're trying to get ahead of that.

"The first iteration of the solution is Project Gap - interchangeable panels that come in a box, all the same size with the exception of the door. It allows you to build your meeting room. It sits on the floor, its weight keeps it in place.

"It has two screens in front of a simple wooden frame and above the conference unit. The frames, monitor, speaker and camera are built and commissioned off site, they're stored internally and picked up when they're needed. The boxes fit into lifts.

"We've even gone to the lengths of colour coding the cables. One of our design goals was to have this simple enough for a facilities team to install.

"Our goal was to deploy within 24 hours. It's been tremendously helpful

for our business customers because we can supply extra facilities on demand.

"It's also been a challenge because the space is spun up for a period of time and then disappears. Things like remaining conventions, wayfindings, signage, asset management, all need to be readdressed.

"Our first run at this came in at the cost of 107% of a typical room but the move and change (MAC) cost was significantly lower. Our iterations now cost less than 90% so it's cheaper than putting a conventional room into place. The MAC cost is less than £3,000."

## Lecture theatre

A SINGLE rack build delivered on site the day it is needed. "The lecterns are all the same – it doesn't matter if you're a presenter in Bangalore, Bangkok or Seattle, it's uniform."

Gary said a theatre design consultant looks at the visitor experience "as far as defining the number of speakers needed. We have standard layouts, but the number is dependent on room configuration, screen size and projector. The local vendor is just

asked to do a 'hang and bang' job."

There are two projectors on the ceiling and a series of ceiling speakers that can be fitted into predefined points. Two projection screens also fit into predefined points on a wall.

"We keep it as simple as possible. You know what you're going to get and we make sure it's delivered on time and to spec."

## Top-end auditoria

THESE spaces, used mainly for customer-facing events, typically seat around 200 people.

"On-site technicians work full-time to run the conferences," said Gary. "The lecture theatre is all self-service.

"Again, a theatre consultant makes sure we're thinking through the whole visitor experience. We're often working in spaces handed over to us so the ability to fit more complex systems becomes more challenging.

"The infrastructure standards are very similar. The only variation tends to be the size of the video wall and repeater screens. Everything else is run to common standard."

## Six things Google has learned

**Choose the right problem** – "We deliver a collaborative premium. Our customers need to be able to say 'our business would suffer without this'. We also demonstrate efficient total cost of ownership. Each year, we have a goal to reduce cost of ownership by 10%. We can't drop the service level agreement (SLA) to customers, though. We can ask if they want a lower SLA. Typically, they say no. So a significant part of what we do is ask how we can reduce our processes to reach the 10% reduction."

**Useability is everything** – "It's absolutely critical that customers can walk in and go straight into a meeting. In our conference rooms, it's one touch to start a meeting. It's the same set-up if you're dialling in from a laptop or phone. Bringing in more complexity breaks the flow of the meeting or makes it more difficult to join. We keep taking things out until customers say it's critical to have it. Our facilities are quite basic, all conference rooms have whiteboards. Customers like the idea, the user interface is simple. The ability to capture and share on a phone is easy too."

**Define your standards** – "To work at scale and in an environment that has many different stakeholders, IT

networks and so on, it's critically important to say 'this is what we require'. So we defined all of our room, design and installation standards. We have an SLA with dimension data. We've written a complex specification defining exactly what we expect of our installation and we agree a cost that's based on the time to carry it out."

**Disciplined change** – "Change management is so critical. Our structured lifecycle management often stops 'a case of the enthusiasms' when a senior customer says 'I've seen this and I want it NOW'. It allows us to deflate that balloon and walk them transparently through the process. If their ideas work, fantastic. If they don't, we're not deploying. It doesn't become an argument around budgets or preferences."

**Don't QA, design** – "We have a six-monthly strategy workshop with our stakeholders about design variation. It's an opportunity to see if their goals or incentives have changed, so we can discuss and adapt. If you go hard after your integrators to manage costs, they're going to cut corners in ways that end up hurting you."

**Think long term** – "Five years ago we would have said we were in the AV business, but now it's all about creating productive spaces with productive technology. You have to be aware that your core competencies will change."

# VR and AR: it's getting real

In what she described as a 'pedagogical romp', Joanne Hudson (right), Associate Professor and Portfolio Director in the School of Sport and Exercise Sciences at Swansea, highlighted the use of Virtual Reality (VR) and Augmented Reality (AR) across a range of disciplines in UK universities – from psychology and engineering to public health and sport and exercise sciences. Her overview came out of research presented to the University of Swansea's Inaugural Conference of Conversion of Augmented Reality in Higher Education.



EVIDENCE showed that learning benefits in a number of ways from the use of VR and AR, Joanne Hudson told delegates.

In the key area of employability it gave students the opportunity to engage with populations, environments and work experiences that they wouldn't do normally.

"Getting students out into placements is not the easiest thing to do, especially in sport exercise and science."

It presented students with new cognitive challenges that they couldn't experience in other ways, she added.

"It also enables perception change – that you can't always get from traditional teaching methods – and can help to enhance inclusivity."

She valued the freedom VR and AR gave students the opportunity to make mistakes and be creative.

"Students are under so much pressure to achieve, trying things out and making mistakes is not part of our culture."

However, Joanne warned: "It's really important if you're going to have any kind of innovations that you can convince academics that it's a worthwhile investment of their time."

## 'Life in old age' app helps to build empathy and break down stereotypes

AS a psychologist and sports exercise scientist, Joanne was interested in how simulation could be used to change the student learning experience around older age and physical activity.

"Part of my role is to prepare people physically, academically and psychologically for going into careers working with the ageing population," she said. "Age stereotypes prevent people from being active. We need to break down barriers. We tried to see if virtual reality in the classroom would change students' stereotypes about older people."

It revolved around a basic app which enabled students to experience how they would look and feel when older. "We kitted up the students and restricted their movement and breathing while they did basic tasks like weighing things and moving around a kitchen. We tried to simulate social isolation.

"In terms of future application and changing their thinking, it was quite useful. It gave a huge insight into an old person's life."

Joanne said the students thought the learning experience was easy and high quality, relevant and it helped them to build empathy.

They felt it had relevance for potentially future careers, they could take it into exercise or medical contexts, going on to be physiotherapists or in medical training.

"An important aspect of learning is creating memorable experiences and being able to identify with somebody in a way you can't from reading a textbook or watching a video," Joanne said.

"We're beginning to see evidence that we can use virtual reality and augmented reality to prepare students for the workplace.

"In this case, it really helped to enhance engagement, which is critical in higher education. It might be helpful in other contexts where we're trying to break down stereotypes such as homelessness. There might be wider application in other academic disciplines."

// An important aspect of learning is creating memorable experiences and being able to identify with somebody in a way you can't from a textbook or watching a video //

# Engineering a boost in creativity

VIRTUAL reality was introduced in mechanical engineering courses at the University of Swansea to see what difference it would make to the learning experience.

"We haven't seen a lot of VR being used in higher education yet," said Will Harrison. "We wanted to give opportunities for lecturers to see if it would be more beneficial to our students, if we could get more hands-on."

Will and Peter tasked 200 Year Two mechanical engineering students with using VR to design a human-powered taxi – it had to be light yet strong with thought given to features like the drive chain, steering and brakes.

"We'd noticed that they'd go straight to the CAD console but CAD was pretty limited in what it could do with the scale. The idea of bringing VR in was to address some of



Will Harrison (left) and Peter Dorrington.

**Course leaders Peter Dorrington and Will Harrison described how they used VR to boost creativity in a mechanical engineering undergraduate course. A collaboration with the University of Bath and University of South Wales, they described it as "a step away from the CAD station: a hands-on and immersive approach."**

the problems with scale and creativity," Peter told delegates.

"VR raises physical questions. When you bring the model into VR, you can put a seat inside and realise you might bang your head or discover that the drive chain is somewhere harmful."

One group learned this for themselves. "They did a CAD design, brought it into the virtual environment, sat down in it and said 'it feels like sitting in a coffin,'" Peter said.

The group did a complete redesign using VR. "In their final report they detailed exactly how it was going to be made – technical drawings, materials, the whole works."

Will and Peter told how the students found the Gravity Sketches 3D design software used with VR to be quite intuitive. "After they learned what the software can do, they come back with designs in their heads and started to put them together. Confidence grew as they picked it up."

A weekly VR café has now been introduced at the university – attended by two senior VR/AV technicians – offering students from all modules the chance get a feel for virtual reality and what it might be able to do.

Will and Peter acknowledged that there were ethical considerations to using VR. "Are people happy to use it? You need to make them aware they might feel sick using this technology."

"We also have to ask what we expect the students to achieve. This boosts creativity but they're very driven by marking criteria."

## How VR students have become better equipped

IN the first year of using VR, Peter and Will said they "basically begged and borrowed equipment."

"It was a bit of a mixture of kits. We had controllers and headsets but it was all wired. We used the Vives like lighthouses and had tower computers as well. Some guys used Vives, some used Oculus. There were cables everywhere. We just had to make do with what we had."

Setting it up in a non-dedicated room took about an hour. The course leaders were running three-hour parallel sessions with nine groups of six in a large room.

"The set-up is pretty slick now. In the past two years we've gone from the towers to laptops with mixed reality headsets. In year two, about 17 Asus gaming laptops came in. They were pretty powerful and could be

deployed in less than 30 minutes. We got additional support from a VR guru plus mixed reality headsets, so we don't need the towers or the cameras around. It's easier and definitely works."

Civil engineering and aerospace students use Google Cardboard headsets and newer tech is coming along in the wake of Oculus Quest.

"GravitySketch gave us licences for students to use their 3D design software as well, so they can hire or borrow it from the library or take it home.

"Next year, we will have a dedicated space with all the kit already there. We can just go in there and teach. It will be much easier than having to cart gear across campus to a different building."

*RIGHT: Up against the wall. . . members line up to tell colleagues about improvements to the student experience at their institutions.*

## Out of the ordinary



GOOD news about how institutions were improving the everyday experience for students were shared by members at SCHOMS19.

The developments were revealed during an informal chat session introduced to highlight what unsung differences are being made.

The round-table discussions were the brainchild of new SCHOMS chair Mark Dunlop. "Conference presents a great opportunity to talk about things you've seen that you like," he said. "It could be a new cafeteria, a new formal space. You don't have to be involved with it and doesn't have to be about technology."

### ▶ Creating collaborative space

Mark himself revealed how an IT suite was created at the **University of Dundee** by merging and 'stripping back' three 60-seater rooms, replacing all the infrastructure with collaborative desks, PCs, a screen and switchers.

*"If you're teaching it could be used for exams or collaboration, it's a little bit of not quite anything but it solved a lot of problems and moved us forward."*

### ▶ Lower costs and fewer complaints

Peppe Cataldo explained how moving services in-house and setting up furniture storage during building work achieved cost savings and cut complaints at the **University of Reading**.

*"We used to work with external suppliers and we asked for a quote but it was very high, even just to use old equipment in the old buildings. So we began to teach our colleagues how to build our cabinets and equipment."*

### ▶ Lecture theatre transformation

Samantha Goodall told how academics at the **University of Kent** could now use a lecture theatre with touch panel and wireless technology that introduced options on the number and nature of inputs.

*"It's great for people with a second language, people*

*with dyslexia, people who need a little extra time to view. We've also taken all of the whiteboards away, people are really engaging with the technology we've put at the front."*

### ▶ Simple comforts in the corridors

Adrian Brett spoke of how corridors and spaces that hadn't been used at **Anglia Ruskin University** had become popular 'warm-up and cool-down' areas with students following a colourful repainting and furnishing programme.

*"Estates painted the walls all different colours, put soft furnishings in, lots of different tables, bean bags in corners. No technology, just plug-in and wifi."*

### ▶ Come on in, the atrium's lovely

Carolyn Wood described how the **University of Brighton** introduced a 'beach hut' look of timber cabins and palm trees in its Checkland Building atrium to create a brighter studying and relaxing area.

*"We reused old bits of furniture and tables to make some of the walls of the huts. We even collected and made the bench tops from little stirrer sticks."*

### ▶ Learning stays on the move

Mike Goodwin told how large touch screens on high adjustable trolleys had been introduced at **University of Wales Trinity St David**, to offer short-term help in setting up rooms.

*"The advantage is that we can move them effectively from one building to another. We can just put them in the back of a van and go off to the next building. As soon as IT can get the network up and running we're ready to teach."*

### ▶ Less is more in breakout areas

Nick Pratt said that **Cranfield University** had discovered 'less is more' by turning old offices into busy student breakout areas without modern technology – just 'old school' tables, chairs, whiteboards and flipcharts.

*"It taught us a lesson. You don't have to flood areas with technology. Just see what students want and academics need. I don't think we engage with people enough. Sometimes less is more."*