

IN THE SPOTLIGHT



Alison Ahearn
GSDC Judge

A reporter has a Q & A with a judge from the SDC

So, tell me, Your Honour. What crimes did these people commit that you must judge them?

These aren't criminals. They design space settlements. They settle disputes about spaces.

Sounds like neighbours who fight over fences or over whether someone stole a metre of land!

No! these are designers for astronomy spaces that get settled by humans. They don't settle disagreements between humans on earth about who owns garden spaces. (That is done by lawyers and adjudicators).

Oh! Okaaay... er... You do know that no one actually lives in space, don't you?

People have lived in space for many years on the International Space Station. And presently, NASA is planning a rehearsal settlement on the moon.

So, these people that you judge design space stations? Does NASA actually need more help with that?

Well, the Russians had a lot to do with the International Space Station, and lots of countries have sent astronauts to live in it for short and long periods of time. Imperial College London employed one of the astronauts to administer its Department of Chemistry. Dozens of people have experienced life in a space settlement.

So why do we need a new space station?

Well, we don't ask these designers to design 'for today.' We ask them to design a space settlement to be built in about 30, 50 or 70 years in the future. And they get asked to design for Venus or Mars or an Asteroid or the Moon or Mercury or... In theory, there is a galaxy full of possible locations.

It takes that long to design a settlement?

Not for these designers! They get a Request for Proposal on a Saturday morning and have a design to present to judges on that evening. If it is the UK Grand Final, they have until the next morning. And they do serious presentations of a least 20 minutes.

Alison Ahearn is a Principal Teaching Fellow at Imperial College London, who teaches undergraduates and postgraduates in civil engineering law and management. At College level, she worked with the Educational Development Unit on teacher- development and on the formalising of systems for recognising the learning achieved by students outside the classroom. Alison joined UKSDC for its first London final and brings boardroom experience from her 10 years as Chair of the Zebra Housing charity (student accommodation). Alison has a particular interest in industry-academic partnerships and versimilitude in project-based learning

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How do a couple of designers manage that?

Oh! we have really large teams! We pull lots of people together from different schools into mixed teams. The 20-minute presentations are by the entire team, or at least by the spokespersons selected by a team. Then, the rest join in for the Q&A about the technical designs so that the judges get to understand the intentions, the rationale or a clarification of how it works.

Schools? These are students? You have university students designing space settlements?

In effect, these are high school students.

But high school students should not be allowed to work in really large groups. Some might sit back and let everyone else do the work!

That is one of the things that makes this a really clever challenge. There is so much work that everyone has something to contribute.

Did they study space engineering and space science at their schools?

No. Most of them have no special knowledge about space. But they all have a lifelong experience of surviving, as a human, on Planet Earth, and they know that they need air, water, food, shelter, radiation protection, waste control, transport, communication. The list goes on. So, they truly understand the client's request better than they imagined. They just do research for those needs to be met at a different location in Space.

So, it is just a matter of looking up some technical ideas on Wikipedia, eh?

The students not only think about technical issues, but they have to manage themselves as a company of workers. They must organise themselves to be able to do a lot of work in a short space of time. But that work is shared between many people, which is great. But they have to learn to communicate with each other.

Sounds impossible. I never even managed to do my own homework on time when I was at school.

At the start of the first day, they get some 'technical training' on how to organise themselves and how to recognise the technical issues.

Still sounds impossible.

Well, there are often some people who have done the competition in the past (they like to come back and have a second and third goes at it).

But they still must have a lot of knowledge?

Well, they also get a quite detailed Request for Proposal from the Client.

The Client wants them to propose? Like for a marriage?

Er...no. Focus! A 'proposal' is another name for 'a design.' The client asks them, in writing, to design a specific Space Settlement. The client indicates that it is for specific purposes at a specific location. The client even gives a list of sub-contractors from whom they can 'buy' bits of the design. No reason to design something from scratch if someone else already has the expertise and knowledge and is willing to supply it. For instance, you don't design your own shoes, do you? You buy them from a shoe supplier, known as 'a shoe shop.'

Whoa! Sub-contracting parts of the design? This is sounding a bit grown-up and sophisticated. Are you sure that they are really school students and not adults in disguise?

Definitely school students. As adults, they often return as volunteer technical advisors and helpers at future events.

How do students know how to get started?

They elect some leaders for the whole team, and then they elect department leaders. Those leaders have an advisor, called a CEO. The leaders have meetings to divide up the work, and then report back to the team. Everyone knows what the work is because the clients request it in the RFP.

Space Ace! These designers are doing a serious exercise!

Yes, the client might be fictitious, but the way the students/designers organise themselves and do the work and make the presentations to the client? well, that is modelled on the real life experience of actual NASA engineers. And the UK Space Agency is a genuine supporter of this design experience because it is real experience of the 'start' of design work for the space industry.

Do say: Everyone who lives in a settlement on Planet Earth has personal experience of what is needed in a human settlement anywhere in the galaxy.

Don't say: Couldn't the astronauts all just go camping in tents?

Thank you Alison, we appreciate the time that you have taken to do this. When not judging competitions or lecturing, Alison can be found singing in her local choir.