

## Session V: Implications for the future

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**Ian Hickie:** I'm the co-director of health and policy at the Brain and Mind Centre of the University of Sydney and you will not be hearing from me for the next three-quarters of an hour as appears in the program. I got Pip Pattison to come back up, Helen Christensen, who just stepped down as the Director of the Black Dog Institute at the University of Sydney, Peter Baume, who's sitting here in the front row, and Jaky Troy. We are going to have a discussion here.

I was glad to see that people are very animated there at the end. That idea that there's something out there that's smarter than us is just so fascinating. I was worried that people might have dropped off by this point but they haven't. We are on the fabulous lands of the Gadigal people. We want to get back outside there as soon as possible.

I must thank Susan as the President of the Royal Society of New South Wales for organising the Forum this year. When she contacted me this earlier she said, "Look, I want to have something about the brain sciences. There are really big questions out there in the world at the moment. Really big challenges that we face." And she started with my personal favourite, which was evil. You know there's bad stuff happening and there's a lot of that seems to be underpinned by human behaviour that doesn't really seem to have a capacity to cope with the challenges that we face in a 21<sup>st</sup>-century global world.

Is there something about us — about the way we're wired, or the way we work or discussing, the way we believe, the way we understand — that's preventing us moving into the 21<sup>st</sup> century and coping with the 21<sup>st</sup> century? Then she enrolled people like George Paxinos, who said, "Well, there's a problem here: we've got this 100,000-year-old technology. It doesn't really drive well in the global world. It's a small-world network. It's used to dealing with people up close in small groups surviving in various ways as part of a group. The global world we live in is completely different. No, we're stuffed, because basically it is not that adaptable to the challenges we face."

An important set of conversations we had about the roles of the various Academies is that they bring deep disciplinary science and very different ideas about the world and how the world is constructed, into that discussion. And really importantly from the Royal Society point of view, and I think for the Academies, the question is: are we of any use in the wider worlds in where we exist? We can amuse ourselves for very long periods of time and we can have deep conversations about the areas in which we are each in and should be fascinated by that.

I was reminded of this some years ago when I was on a committee chaired by the National Health and Medical Research Council CEO at the time who was meeting with the heads of the federal departments.

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<sup>1</sup> This is an edited transcript of the session [Ed.]

And lined up all these really great science people in health and medical research who all turned up and said, “We have answers that matter.” And the secretary said, “Not to the questions we’re asking, which are what actually afflicts us.”

So we thought this part of the day should be devoted to all the stuff you’ve heard today from really brilliant people doing really great work in what they believe are the answers that matter or could matter. And we did select as the organising committee two particularly important phases of in a wider society: first, the importance of child development for the future. Children are the sentinels of what is happening because brain development is affected very much by the environments in which they’re growing up. Their changes in behaviour and function tell us much more quickly what is happening in the society than those of us who are relatively impervious at a certain stage, who have become fixed. Was it George who said those who prevent progress in their field are the real senior people in their field?

The second phase is related to aging. I’ve got Peter Baume here. I don’t know if Peter was responsible for this. I think the worst thing ever happened in my professional life was the Intergenerational Report: aging is just a cost. Aging is just a problem. It’s something the rest of us, the real earners, have to do to take care of the rest of you, who are a cost to society as you age.

Two of the biggest challenges — I’ll come back to this in a mental wealth sense shortly — is the importance of the two phases of life: Child Development and Aging. We long outlive our utility now due to health and medical research, long beyond reproducing. We no longer should be hanging around. We’re just using up resources, as George pointed out. But these are two of

the big challenges for the society we have now — long lives, complex lives and I think very importantly, as raised throughout the day perhaps in our Western cultures, more disconnected lives. What are the implications of that? So do we actually have those capacities? I wanted to get four more intelligent people than me up here to start with, and ask them: out of all the answers they’ve heard today, do any answer any of the questions or do any help them to think about any of the questions that they think matter?

When I was very young, Peter Baume was very prominent in both his political life as a senator and in talking intelligent ideas or an idea of intelligence into national politics, which I thought was really interesting. To actually engage with politics, he continues to engage through education and his work in those areas. If you pop down to ANU you’ll see a really important thing — you’ll see his name on buildings. They must think he’s dead but he’s not — he’s alive and here and with us.

Peter, do you think any of the answers that you’ve heard today help to answer the questions that you worry about and those of course who are making political decisions though they worry about?

**Peter Baume:** Well, thank you, Ian. One of the recurring themes earlier in the day from some people has been a variant on the sentence: what the world needs most is more money for my cause. Now, you’ve got to keep saying that, but logic alone is not going to win any political argument. There’s got to be the pushing of a political hot button as well. You need both things. So Grace Tame and Brittany Higgins were not important for themselves, but they were very important for the causes that they articulated. The community was ready to move and then policy change could occur.

Andrew Leigh spoke by video today, but apart from him I don't think there are many people here who've sat around a Cabinet table. In Cabinet when there's a consideration of an issue where good and bad are quite different, decisions are quite easy. And 80% of the agenda of any Cabinet meeting is decided within 20 minutes. And the other 20% takes 3 hours because the issues are balanced — good and bad — and the politicians who're sitting around that Cabinet table are smart, they're able, and they understand what you've said. They know the issues exist, but they're faced with a choice between A and B, where A and B are fairly close.

The economists here will tell you all about the issue of opportunity cost: if you spend a dollar on A you can't spend it on B. Just think for a moment about the size of the budget cake sitting in the centre of the table. It's going to be cut into slices. You're going to get a slice and so's the person next to you. And the people around the cabinet table have three lots of responsibilities: they're politicians and they're responsible for their electorate, they they're responsible for the country, and they're responsible for their portfolio. So a lot of them are going to be interested in getting money for their portfolio. The minister for roads wants more money to build roads and build bridges and so on.

Either the budget cake is going to increase in size so everyone can get a slightly bigger slice, or your increase is going to come at someone else's expense. The person to your left or your right suddenly becomes an ally maybe, if you're very eloquent. But they know that your success will mean less for them. So keep that in mind when people are considering the causes for which they're fighting. Keep articulating what you're

saying, but remember something else is needed before you're going to win politically.

**IH:** Thank you, Peter. Helen who's been involved in a lot of the complex issues around mental health and their wider application in Australia, particularly around suicide prevention and some of the wider issues and must say important in terms of the last discussion. The wider use of technology to do things in the world that in our world I think Andrew Chanen would say this morning: it's assumed to be able to occur between one human and another. What do you think, Helen, in terms of the extent to which the things that people have been commenting on, or which bits of what you've heard, might contribute most to answering questions that matter?

**Helen Christensen:** I guess my response would be slightly orthogonal to that question. I'll describe an article that was published in *Nature* in January this year which basically said that our innovation had stalled and that we are not making the level of progress that we should be. The authors put it down to a number of things they looked at. It was a very well controlled article, as you can imagine for a *Nature* paper. And basically they were saying we're working in silos and we're not communicating with each other — we're getting smaller in the areas in which we're working and we're not leveraging the knowledge that we have across disciplines. They also made the point, and I think it's a really good one, that you need a particular device in order to kind of kick-start some of this innovation.

One of those devices is technology, whether it's artificial intelligence or the technologies that we've been using — the new tools that we have in order to do things. These provide a beacon about what we can

do. I think we should think differently about how we structure our science.

Going back to the questions you were talking about: I think we need to have “moon shots” that we all try and work towards with all the strength of the different disciplines that we have. To conceptualise problems in the way that you were talking about earlier, but also about what sort of mechanisms and efforts we can bring in. Because at the moment our science is basically working off grants, and we virtually know what we’re going to do when we get that grant. We don’t really think that much. Congratulations to the organisers today because I think this has been a very fruitful conference in bringing together different points. I think this is what we as Academies should be doing more and more of, rather than concentrating on just describing what we’re doing in our own areas.

**IH:** So what are your top two or three moon shots in the current world?

**HC:** I dare not say this in front of all the AI people but I think we need centres where people are freed from doing their grants to think about a question like: what’s the new therapy, if that’s the right way of describing it. And what you were saying before — we’ve had Freud, we’ve had CBT, we’re moving into different stratification models etc., but what’s the new way of thinking about how we change ourselves so that we have better mental health? Maybe large-language models or some of the generative AI opportunities and bringing in different people? So that would be one to me. We are failing in our therapies and we talk about personalisation. That would be a moon shot. How can we improve that?

**IH:** I now want to move on to Pip. Most of the organising of the Forum has been done by Pip and Sue. Pip took on a great job a

little while ago as the Deputy Vice Chancellor of Education at Sydney University. That’s a challenge: that’s probably a moon-shot type activity — trying to change the educational framework under which Sydney University has operated for the last 175 years. I said to Pip in conversation, “Why’d you ever do that?” I just couldn’t think of anything worse to take on as a challenge. And she said, “Because education really matters, how we teach it really matters, how we think.”

Pip has been associated with a major restructure of the educational framework at the University, to be less narrow in its disciplinary base and hopefully respond to current generations in a broader way of different experiences, to pick up the Einstein quote earlier — on different experiences of learning, not just being subject to being told what to think. So, Pip, what do you think about what you’ve heard and the way people think about mental function as ramifications for how we educate?

**Pip Pattison:** That’s a great question and I just want to say I love Helen’s idea about tackling some big questions together, because I do think occasions like today — where we tackle themes from a number of different disciplinary perspectives — just spark ideas and connections. To use the metaphor of the great big brain out there that includes us all that we haven’t necessarily thought of before. I think from an educational point of view the development of individuals who can gain an expertise in a discipline and understand it thoroughly and well is a long-standing approach to education, and it’s one we shouldn’t move away from. But the capacity to actually have meaningful conversations with people who work in other areas or come from other backgrounds is, I think, something that we’ve really missed a bit at, particularly at the tertiary level.

I think it's much less problematic in school education, although I'm not an expert in that. It just seems a little bit less siloed. And I do think the kinds of approach and experiences that Helen just talked about for us as a scholarly community are just as important for our students. Because I think it's through the exploration of things that are beyond what we know that we really do build the capacity to work across the boundaries. That's just a fundamental thing for education and for success in work, research, and life.

**IH:** So I move on to Jaky. I want to recognise the impact of Jaky's way of thinking on my own work. I've had the great pleasure to work with Jaky in recent times on a number of large projects. One thing you just alluded to in passing, Jaky, was the use of technology to assist families, particularly mothers and children, with early childhood development in Afghanistan and other countries through technology — a combination of technology group thinking delivered in countries like Afghanistan which continued after the Taliban had retaken over the joint. It brings together social scientists — in particular, digital technologists. We got involved out of the neuroscience of development: what were the sort of strands with a strong focus on what Adam was about: social cognition.

The most important thing in humans developing is not simply statistical or adding or mimicking calculators. It is the capacity to operate in social groups. And our discussion about what is evil or what psychopathic or what the human thing is that leads to such evil — it's the decline in concern and the loss of empathy for others that actually leads people and underpins some of the most terrible things that humans can actually do. And that tension between what is

good for the individual and what is good for the group on an ongoing basis.

The particular project that Jaky and I have been working on was unique. We've constantly had to look at different cultures around the world. That project looks at the use of technology — neuroscience of child development — in each place that we've rolled that out: I got to go to Uzbekistan last year, to Kazakhstan, to Indonesia, to Malaysia, around the world. Each place is different in its cultural settings.

What most of those places have that we do not have is very strong transgenerational and kinship relationships — ways of speaking with each other but mutual responsibilities etc. I love this great respect for older people and their role and their contribution to the emotional growth of two generations — not their children but their grandchildren and others — and the role of relationships in those particular works.

Second, the influence of Jaky's thinking in the period immediately after the Referendum when people like myself were going, "What do we think now?" I had the pleasure of doing a webinar with Jaky and Professor Pat Dodson, who's one of the leading Indigenous psychologists in the country, about an important thing, which was: and to stop and think. The Indigenous people did not immediately respond to the political cycle, did not immediately engage in the analysis of the Yes campaign. They said, "We're going to take time to think about it."

I know an elderly woman from Gladstone in Queensland. I contacted her, hadn't seen her for some time. And she said "Ian, I'm not speaking this week, I'll talk to you next week." And Jaky pointed out, "We need to take time to grieve, we need to take time to actually consider not all the rationality what to do next immediately come together — we

need to take time to think about the emotional impact of all of that, all that had gone beforehand — who's most affected," and not immediately. Retreat to the kind of rational solvent kind of way that we would do. And very much do as an individual thing.

Jaky and Pat convened online, using technology to bring people together, 300 people from around the country, to just consider and share their response to the Referendum, not to the outcome but just to the position in which we find ourselves. I thought, "What a different way to think about the problem." Made no sense to our political systems, made no sense to our immediate media, our people who are asking people on the night, "What are you immediately going to do?" with the Prime Minister the next day, "What are you immediately going to do? What's going to be the solution now for closing the gap?"

A different way of thinking about stuff collectively, with strong emphasis on the emotionality required to empower human behaviour, to do what Helen's alluding to — to act collectively, to actually think about the biggest stuff that's at stake. So, Jaky, out of all the things you've heard today and interaction with, because you've doing this kind of interaction with both neuroscience and with technology for some time, has it helped at all? Is it helping at all? Is it helping to solve big problems or it just a weird way of thinking?

**Jaky Troy:** Well, Pip said to me in the break, "I think you're on to something" with the work I'd like to do with languages: the 407 missing languages. I should say there are about 15 that are still strong, and then there are a whole lot of others like my own. My mob were in this particular building, right in this room, singing a song of my people that probably hadn't been sung for 150

years. And in that moment we were all *Naru* together, of one voice, using our language and being culturally ourselves.

Now AI could really help us with getting our language back. That's just one kind of technology. Something as simple as, what was it? Idiotic AI? Or not so intelligent AI? I remember AI being a program I used with a breadboard. That's how long ago. But it can help us generate language that we can interact with, engage with. For all these languages that we only have fragmentary information about, we can input. I'd love to have the money — we need to get around the Cabinet table — I used to manage the broadcasting and languages program for Australia for Aboriginal languages. We could input what we know about the languages and generate a way of using my language.

But I would never want to take out the human element. I would never want to miss the moment of walking with my real people into here and singing our song and the engagement of the humans the audience and really no silicon. By the way, you can make a silicon brain responsible: you can just squash it if it doesn't do what you want it to do. But to take the human out of what we are that would be a huge loss, I would say as an Indigenous person — as an Aboriginal person — our response to things like the Referendum and for me the death of my husband. I wouldn't want to miss those experiences and feel the grief and feel the joy. And nothing can ever synthetically create that for me — it wouldn't be me experiencing it.

What I take away from today is there are huge, huge possibilities around understanding our brains and how to manage it and care for our living brain and how to augment what we do with technology. But we never ever lose what we are here today. We

should do more of this, sitting in a room. Without engaging with other people and not sharing ideas is not going to create the brilliant random kind of things that humans do.

I know machines can do it too. But I don't think they have as much fun, and they don't have the tactile responses that we do. Everything to do with what we are as human. Machines don't eat, they don't drink, they won't get Alzheimer's — well maybe they will, I don't know — but it's keeping the human in all of it which I think. Also understanding yourself as part of an animated world.

It is great to think all these boards were trees. And there's still something of those trees in them. That tree out there has that spirit, you know. All the birds and everything were engaging. They're all looking in the windows, looking at us. And for us, that is because there is this multi-dimensional engagement that is always happening, and no technology can really give us that. We have to have something of us as humans in there to keep that going.

**IH:** The other thing in Susan's agenda was: we should engage in a sort of overt, political way. The Academies need to engage politically, partly picking up what Pip's saying. Three of the people unfortunately couldn't be today who had this conversation and worked with us. Those who were thinking about the future of Australia: Geoff Gallop, who was previously the premier of W.A. and had a depressive episode from which he's recovered and then works with us; Sam Mostyn,<sup>2</sup> who now works for the Prime Minister's agenda on female pay equality and growth in key areas of the caring economy; and Victor Dominello, a previ-

ous Minister here in New South Wales for services. In New South Wales we used to have these crazy systems where you lined up for your licence and you lined up for your registry for this. And you got all these different audit agencies. Victor completely transformed that thing in New South Wales called Service NSW. So now it exists: most of that stuff's online. Anything can be done online. He refers to it as a huge transformation. When people said it couldn't be done, he goes, "I've walked on the moon. I've done it. You can take Human Services and you can put technology at the middle of it. You just have to be prepared to put the information and people at the centre of services that are not." All of them are involved with us in growing concepts around mental wealth.

Where does Australia go? I have a daughter who works for the Reserve Bank who's very proud of the fact that Australia used to be considered at the top of the world economically: we had 20-something years of continuous growth, we got ourselves on the front page of the *Economist* for doing that. At the time suicide rates were actually going up, young people's mental health was getting worse, and the challenges are associated but we seemed to be economically thriving. What Peter was alluding to: the cake was getting bigger, GDP was kind of growing. But were we okay?

I think in the post-COVID era and the other challenges we face, it's an interesting time because the economic discourse now is: economically we're not okay: cost of living is going up, housing affordability is going up, there's uncertainty, interest rates etc. The political discourse is not one just of growth, it's now of all the economic challenges. Do we have time for social transformation?

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<sup>2</sup> In April 2024, Prime Minister Anthony Albanese announced that Sam Mostyn will be sworn in as the 28<sup>th</sup> Governor-General of Australia on 1 July 2024. [Ed.]

Do we have time for anything else or is the new economic challenge now even more demanding of attention?

Very importantly, the UK government Office of Science back in 2008 produced a summary of all the areas that were at the time termed the mental wealth of nations. Many of us have knocked off that term ever since and tried to get the political class — we did have Malcolm Turnbull talking this at one stage — it isn't just about mental health or it isn't just about GDP. What is our collective mental wealth? For countries to prosper both economically and socially you've got to focus on the growth of the collective mental wealth. It's not an individual brain capital thing. It's not the summation of all the individuals in that society. It's our collective mental wealth and what that may constitute. And they did develop part of that.

It's still well worth looking at. They developed a lifespan kind of approach. We spend from 9 months to 22 years investing in the brain and social development of our kids. Economists would see it as a big cost but at least for kids we call it an investment. So I say to my kids, we've invested a lot of time. To repay it, take care of me when I'm old. I expect a large return on investment. They're not so personally sure.

I was so glad that Glenda said — I've been telling people that forever, but no one believes me — that you don't lose those cells as you age — it's actually the microglia, the glia which are the cells which are most responsive to the environment. They're the ones that are reacting to the environment all the time. That's problematic. And they underpin the synaptic connections.

There's a separate podcast I'm associated with, "Never Retire." Clearly people in this room are never retiring: they come out.

George will come out at any time to talk to anyone in any coffee shop anywhere, preferably in Greece. That association with aging is a cohort effect reported in those who've become ill in terms of their care. Those who are still working or actually in good health, their brain capital does not decline. It was very important to have this kind of capacity. The idea we've been working — on building new models of this.

I'm tied up an economic discourse. This is the thing that Geoff Gallop and Sam Mostyn and others are trying to do: build a new metric of this in this country, the metric of mental wealth. So we're trying to do what the economists do — we're trying to build these complicated models and put in the dollar value of social and mental wealth alongside GDP. The current Treasurer says, "Yes, the well-being economy." Lots of people say well-being economy. What does it mean? Because at the same time the government says it's only cost of living that matters, or it's only interest rates that matter or — you just heard about architecture — it's only housing affordability, so we've just got to build as many as we can as close to something else. Very narrow kind of perspectives. So we are tied up in this wider issue. For example, some early modelling of the dollar value of what people do through volunteering and caring, which Andrew Leigh alluded to earlier, is about \$285 billion a year. So, Peter, do you think we have to do something?

**PB:** I think human personality hasn't changed and — Tony knows this better than anyone — crises like the COVID one are going to recur and recur and recur. We just have to be ready for them, and, since our personalities haven't changed, governments will respond in an ad hoc way.



**IH:** Yes we didn't really dwell on that — forgetting is an essential human capability. Sharon and others might want to comment.

**Question:** One of the things that occurred to me in listening to all of the talks today was that they weren't just saying I want more money for my bit. They're also saying, here's a solution but it isn't going to happen tomorrow. These are long-term things. But it's also in requesting, for example, funds to assist in particular areas, such as early diagnosis or early intervention or whatever else. Almost all of them propose that ultimately it would be a cost saving because you're not going to come back.

To your point about human capital — you're maximising that human potential and capital, so actually the issue here is not one of implementation or a pie getting bigger or smaller, it's short-termism. And that also speaks to COVID in the crisis response rate, which is basically: had one been prepared — and the UK has a huge review going on at the moment about exactly that — had they been prepared and done any of the things that they learned from SARS, they could have saved themselves £600 billion. So a lot of this is down to seeing that there is a return on this investment. And that's the way you might get economists and business people to understand why it's important to make these investments.

**IH:** Jaky might want to comment here. Courtesy of Jaky in these projects, I found myself involved with Kazakhstan during these particular things which have a seven-generation approach. Can you name the previous seven generations from which you are personally derived? I got back to the West Coast of Ireland and got lost. I did find my grandfather on the parish registry in Galway. After that got no idea, can't say. You know it's a really interesting

idea of continuity, and I think Jaky's been saying this continuously. We don't just have short-termism in planning, we have short-term thinking about ourselves. And this has become very individualistic in our own culture, but also our own selves over time. Do you want to? So this is whether this is all humans or it's, what did Jaky say earlier, a white Anglo-Saxon English idea.

**JT:** It's a great pity that Australia doesn't want to learn from the way in which Aboriginal people organise ourselves. I wasn't joking when I said earlier that I think we've spent at least well 72,000 to 120,000 years dealing with social complexity, and dealing with it very elegantly. This country was lightly managed, we lived well. We were human, we killed each other, we fought with each other, we made babies with each other, we did what people do. But fundamentally it's the knowledge of how we managed ourselves really effectively. That was our technology. It was the development of 407 languages, developed because that's 407 different socio-political groups of people who don't want to be the same as the people next door. But they don't want to always be killing them. They want to be interacting and engaging. In the end, all technology is the use of language systems to produce technology — machines — that will think for us and do work for us.

I have to say this: on this very spot here, Phillip and his fellow First Fleeters, the officers, were learning the language of the Sydney area. One of the things they learned was that the Gadigal people here thought what the British were doing was ridiculous: they were wasting all their time building things, running around, exhausting themselves, not eating well, building very elaborate houses out of Aboriginal sandstone.

In thinking about how to describe what the British were doing, what they said was: “You should be doing work and making use of the land.” Of course we hadn’t used the land for building. And they said, well maybe serious creative play — play looks like what everybody does most of the day, which is enjoy themselves. Then you spend a bit of time feeding yourself and while you’re doing that you’re enjoying that because it’s social activity with other people.

You’re never doing things just by yourself stuck in a room staring at a computer screen. You’re always active with other people. People matter — the generations of people matter. Keeping that kind of thinking into this world that we’ve got now where you’ve got — look, technology makes life easier. It frees humans up to do things that they should be doing — which is smelling the roses.

One of the last things my husband said was he wished he’d had time to smell the roses, to just be human, and not have to spend all day in super-secure rooms, bunkers, dealing with computer programming. He did love doing that. His serious creative play mattered to him, but he would have liked a bit more time just to be with us.

**IH:** On the short-termism question — because this again comes back to a point I think Susan quite rightly highlighted — we’re very critical of political classes and the election — things we have as if it is their fault. But what is the role of the institutions that we are all part of in the longer-term processes?

I’m going to ask people about this. It’s some interesting discussion we had about whether Sydney University is very good at any of these things. The universities and the education systems often come up as the kind of institutional things about longer-term

memory and planning, and getting beyond short-termism and creating skill sets and people who don’t necessarily just do that which is so damaging. Do you want to comment, Pip?

**PP:** Sure, and you’re giving me a second chance to answer the first question. It came up today in a number of different contexts: the sort of integration of social and more cognitive skills is something that happens early in life. It’s something that continues through life. At the universities we just haven’t paid enough attention to the non-cognitive aspects of the development of young people. A lot of the sort of natural mechanisms for encouraging a lot of the informal learning activity that took place — and particularly as a result of COVID — have been eroded, partly by the universities getting much bigger, partly by a change in the sort of economic conditions and students needing to do more paid work, and partly through competition with a whole range of other activities, especially those on social media and all that we heard about today too. That all goes through the lifespan. Part of what we need to do is just make sure those opportunities exist for young people to actually develop the skills that will make them good members of collectives.

**IH:** Do you mean actually come to university and learn by experience?

**PP:** Yes, I do. And not only learn by experience, but learn by experience together with others in groups. So, yes.

**Q:** One of the things that I studied when I looked at universities about 25 years ago was that there were two types — there were communities of practice who established the engineering and sort of outcome-oriented university, and then there were communi-

ties of interest who thought about things very carefully.

When we started working on this, we made a distinction between communities of practice who are trying to do things that transform the architecture of our societies at the kind of physicality level, and then we want to think more clearly about the future and those were communities of Interest. Now if you look at the universities around the world, there were two types: there were very practical universities — Strathclyde is a really good example — and there were very sort of thought-centric universities. We sort of oscillate between these.

But it seems to me that very often we confuse the fact that practice is limited by the laws of physics generally at some point, and you therefore can make up things in your head that are never going to be true in practice. Then you are not living in the reality of practice anymore. One of the things that worries me at the moment about a lot of the discourse that happens is: people imagine futures in their heads that are not connected to practical reality. How do we get the new synergy, the new genetic code of practice — synthesising with imagination in a way that is productive and plausible and rooted in the reality and the struggles of real people who live in ground truth?

**IH:** You're really interesting people, but most of you would make hopeless decision makers because this balancing of the competing sets of ideas — trying to bring the best of what is out there down into practical application in people's lives, within the culture within which we live at the time, within

the constraints of the way that we respond cognitively and emotionally to those things — I'm not sure why Pip just referred to those other skills as non-cognitive: I'd say they were very cognitive skills — in the sort of social cognition or the emotional kind of world.

How do you do that? I think the hope of today is to present a lot of what is really going on in the area, to do it across the various Academies and what they all bring in their own rich traditions into that area. And then to be able to convene a group like this to talk about it.

Now to thank the Governor for access to her home and answer her question: my own view would be that her own brain is considerably different in the 21<sup>st</sup> century than before because our brains are changing all the time: those little microglia running around are knocking off synaptic connections (or not) in responses to the environments in which you are currently living. And on that optimistic note I think we're going to adjourn to the Garden.

## References

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