

## **Edited Transcript**

Universal Design Conference

Sydney Town Hall (Lower)

Wednesday, 20 August 2014 at 9am

Day 1

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## **Australian Universal Design Conference 2014**

### **Universal Design as a Public Good: Can it Deliver?**

**Keynote Address by Dr Gerald Craddock (edited transcript)**

**20 August 2014**

**Synopsis:** Dr Craddock's presentation covers the importance of using consistent terminology when discussing and researching aspects of universal design and supports the use of the term "universal design" as defined in the UN Convention on the Rights of Persons with Disabilities. Also essential to the ongoing success of universal design is finding champions within government and industry. He relates two success stories in Ireland where their Centre worked with the tourism and energy sectors to create improved outcomes for customers. The development of, and necessity for, standards is well covered by Dr Craddock and the need to produce more evidence for the economic arguments for universal design. Training and education of design professionals is also an important element and he describes a "Design Challenge" where young designers started to think about users across all age groups, not just their own cohort. The involvement of end-users – citizens – in co-designing aspects of products, buildings and services is another important element of universal design and fits well with the move for more citizen involvement in decision making. Another core element is policy: policies that are universally designed, that is, inclusive. This requires a systems view of change. Collaboration across countries is essential for advancing the endeavour of universal design, particularly in research and developing datasets. The Centre for Excellence in Universal Design in Ireland is based in the Department of Justice and demonstrates how seriously the Irish Government takes the issues of equity and inclusion of all its citizens, and the seriousness in which it takes its obligations under the UN Convention.

### **What is universal design?**

Elaine Ostroff defines universal design in the 2nd edition of the Universal Design Handbook as, "Contrary to the assumption that attention to the needs of diverse people limits good design, the results of imaginative designers around the world reveal a wide range of applications that delight the senses and lifts the human spirit when universal design is integral or central".

Universal design challenges designers, and we are all designers, in our own small way and we all have a part to play. That is the crucial cornerstone of universal design.

The *World Disability Report* by the World Health Organization and the World Bank, defined accessibility and universal design as both divergent and convergent endeavours. 'Accessibility' provides basic access and usability of facilities, products, and services for people with disabilities. 'Universal design' is about enabling independence and social participation for all through processes

of continual improvement. This is a paradigm shift from basic accessibility because it is not just about people with disability – it is about everyone. As we gather more knowledge, more information and particularly more evidence on what the key issues are, we can continually improve our design practice to resolve the issues.

### **The progress of universal design**

In 2012 a major international conference on universal design was held in Oslo. A trend from regulation and standards toward innovation and inclusion was identified where we can all be involved. Rather than talking about barriers, we are talking more about sustainability in its broadest sense. This is bringing a new terminology about creativity and innovation into the arena. The CEO of the UK Design Council summarised it thus,

"If creativity is the generation of new ideas, innovation is the successful exploitation of those ideas."

The conduit between creativity and innovation is good design, universal design. We're talking about everyday products: the kitchen sink where grandmother and granddaughter share working space, where you can use your washing machine without having difficulties, or automatic doors at the shops - everybody now goes through automatic doors without ever thinking this is universal design. Most great designs are invisible, but when difficulties are visible, we need to be engaging and working together to solve them.

In Dublin in Ireland our transport system has been recognised as one of the better designs in Europe. It's not just about the built environment and the buses, it's also about the service perspective, and looking at the technology where people can now use accessible apps to find their times, locations, and where the transport service and system operates.

So are we talking about design *for* or design *with*? I think this is the journey we're on - we're moving from 'for' to 'with' people.

### **UN Convention on the Rights of Persons with Disabilities**

The UN Convention on the Rights of Persons with Disabilities was the fastest ratified Convention in the UN and now has 158 signatories. The Convention defines universal design as,

"the design of products, environments, programs and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design".

It has the caveat,

"Universal design shall not exclude assistive devices for particular groups of persons with disabilities where this is needed."

It puts the challenge down to State parties, governments, and city offices which states

"State parties are to undertake or promote research and development of universally designed goods, services, equipment and facilities, to promote their availability and use and to promote universal design in the development of standards and guidelines".

Within our own the legislation we adopted the term "universal design". Other terms are used elsewhere, such as "inclusive design" in the UK, and "design for all", in Europe. But in other parts of the world, particularly in Australia and Asia, the term used is "universal design". Consistency in terminology is critical to the ongoing development of the universal design endeavour.

Universal design assumes every person experiences barriers, reduced functioning, some form of disability - temporary or permanent - at some stage in their life. So we will all experience it either in the past, present or in the future.

### **The core ingredients for universal design to be a catalyst for change**

From a global perspective there is talk about the more demanding citizen customer, increasing social complexity and diversity, and I think for most cities across the globe, overstretched resources. Also, there is a dialogue about the whole trust of government, transparency and citizen involvement in decisions.

From an OECD perspective there are three distinct levels of citizen involvement, from providing just basic information to consultation and discussion, and finally to a dialogue looking at active participation by the citizens themselves in co-designing, co-producing better practices, better environments for everyone.

#### **Three levels of problems:**

1. Tame problems for which we know the solution almost before we tackle the problem;
2. Complex problems where we know what the problem is, but we're not quite sure what the solution is; and
3. Wicked problems where we have some idea of the complexity or the mosaic of the difficulties, but we have no idea what the solutions are (particularly when we talk about older people, people with disabilities and the community, be it around education, employment, quality of life).

**Design ladder:** Looking at the public sector in the UK and their design ladder, we have a three-step approach:

1. Design for discrete problems, the tame problem
2. Complex problems which require capacity and skills, (we need tools, particularly design tools)
3. Design for policy, that it is a core part of government, local authorities, how they actually do their work and engage with all citizens.

So if we combine the three distinct elements we're looking at a systems view of change and a catalyst for change, universal design being central. To tackle wicked problems we need to participate with all our citizens and we need to be using design thinking, design tools, as part of that.

1. Summarising the four key recommendations from the UK Design Council, which has now been incorporated into the European Union, the *Design for Growth and Prosperity* publication has four key recommendations: Use the public sector design ladder as a tool and

- roadmap for progression;
2. Build design thinking into government and public policy practice;
  3. Build a strong design sector that can offer strategic and service design to the public sector. (Lack of tertiary education is a major issue – we are not producing designers that can engage at service and strategic levels.) Build the evidence base as there is a lack of evidence and clear data.

Talking about research, I think we have some basic understanding what universal design is. I don't think we've gathered the evidence to impact at a national level or at a global level as yet. We're still on the journey. For effective evidence gathering we are using the term "universal design" which is widely used in industry and in ICT across the globe.

### **Use-inspired basic research**

Use-inspired basic research was developed by Stokes in 1998. He uses the example of Niels Bohr who found the atom but he looked only at the atom itself, not how it could be applied. Edison, who developed electricity, by comparison, was looking for a commercial interest in generating electricity – applied research. Then we have Louis Pasteur who was looking at the problems and how to resolve those problems.

### **Standards need consistent terminology**

International standards are a key driver for how we can make change, both nationally and internationally. The ISO ergonomics standard says,

"Accurate terminology, which is based on internationally agreed language, is fundamental to design. This is particularly important where human involvement is expected."

For universal design, a core value is working with humanity, working with people. So we need to be talking and speaking the same language. Given the UN Convention has defined and utilised the term 'universal design', I think we need to be using that terminology and language as we talk to ourselves and also to other potential new partners along the way.

### **Universal design guidance and the WHO ICF**

The World Health Organization developed a classification system for all human functioning in 2001 (International Classification of Functioning, Disability and Health (ICF)). It can be applied to the development of design guidance standards by using a set of linking rules together with related classifications to represent the interaction of human functions, activities and environmental factors.

Also in 2001 work was completed on the ISO Guide 71 (Guidelines for standards developers to address the needs of older persons and persons with disabilities). So Guide 71 did not include the World Health Organization's ICF. It is now out and being reviewed. So for all standards, developers can use this Guide in any standard they're developing to include the needs or requirements of older people and people with disabilities.

Within the ISO Guide 71 and its revision, we felt within the Centre we needed to do the basic research on this and find out how this could be applied within the new Guide. For people not

familiar with the ICF, it talks about body functions, activities and participation, and the key environmental factors and the personal factors and how they all interact together. So it is a very comprehensive classification of human function.

Within that framework is a coding system, body functions, body structures, activity and participation, and environmental factors are defined by codes. The fifth component, personal factors, is not included within the classification and there is some concern that the work won't be continued to include personal factors. So we developed a model called the PAE, (Person, Activity and Environment) to show how they can work together for people to participate, improve their performance, be it their own personal performance or the performance of the product, or other design.

We produced a classification that looked at the three key components: activity, person, and environment. Then we looked at the tasks involved looking at the ICF classification system. Not only were we using ICF, we were also looking at other international standards where they applied. For example, we looked at the TR 22411 ergonomics standard for tap design and use when dealing with taps.

We produced the document, but then we had to get it incorporated. This is very new work and has just been incorporated into the international standard. It hasn't been signed off as yet, but we hope the new guide will be signed off in February 2015.

### **Collaboration and collecting datasets**

We need to collaborate and work together in gathering significant datasets. We're talking about strategic and operational partnerships with people, also with the design community, and also the building community. There are key centres across the globe within Europe, Dublin, Norway, United States, India, Malaysia, Singapore, Japan, and also work is being done here in Australia. Professor Ed Steinfeld is presenting in South Africa today and we expect movement on universal design to follow.

### **Constructing economic arguments**

In the key publication from the European Commission, *Design for Growth and Prosperity*, they're talking about a European coding system called the NACE and including design, and particular specialised design, as a specific code, but looking at it from an economic perspective. I think we are still quite shy about being able to define the economic benefits when we talk about design. When we talk globally it makes a difference because it is designed once, and then everyone can use it. But it is producing the economic argument behind this. This is work we're about to start. We have just got the chair of a new European Standard on Universal Design, which is looking at how UD can be integrated into the manufacturing process and it's under EU Mandate 473. A key element is how do we present the economic case for universal design? So this is a four-year journey that we're on and we would like you to participate and collaborate with us as part of this journey.

Just putting it into an international context, there is an international system of economic activity classifications: at the global level it's called the ISIC, at the EU level it's the NACE, and then there are national coding systems. This is data that are gathered every year for our national statistics office in

Ireland, so we need to be engaged with them, we need to be defining universal design, the economic codes, and how we can actually develop that not only at a European level, but also at an international level.

### **Coding the built environment**

The National Institute of Building Sciences in the United States has a specific coding system which uses the OMNI class coding system. Ed Steinfeld has been involved in this. It defines each element: it has thousands of codes on each item within the built environment. So this is significant work and we can't do this in isolation. This can only be done internationally collaborating with other travellers on this journey that we're taking together. So Professor Ed Stanfield from the University at Buffalo, is leading this work. The first meeting is happening in Washington on 19 September and we're hoping to run a Webinar following the results of that meeting. We would like you to participate in that global collaboration to see how we can develop and integrate universal design coding within the built environment.

I suppose the key message here is yes, there's a very strong feel-good factor around universal design, it is for the common good, but for us to really deliver on universal design we need to be out playing with the big boys, and these coding systems are where the game is at. We haven't been at this. We spent five years on the ICF work. We've still not completed it, as in it has been totally embraced within the new guide at international standards. We hope that will happen in the next five to six months. Again, we can get you involved, because I know we've had great collaboration with your members who sit on this ISO committee representing Australia as well.

### **So where is the Government in all of this?**

How do we bridge the "know-go" gap? We have knowledge, we need to develop more, but also how do we apply this, and particularly the bridge between research and policy and, between knowledge and action. There are the three distinct players: political involvement – the actors; the knowledge evidence ; and social mobility – the stakeholders (us).

We have to become boundary hoppers - how do we bridge the silos, how do we bridge between the environment, between transport, between education, between health?

### **Creating standards and tool kits for tourism and energy supply**

#### **A tourism standard for Ireland**

Last year we looked at the whole area of tourism and developed the first standard. We also developed toolkits because the industry - hotels, small B&Bs, pubs, and restaurants - said front of house staff are young and want information fast. The toolkits are quick one-two, how do I engage with customers who may be slightly different to other customers?

#### **An energy standard for Ireland**

We also worked very closely in 2012 with both gas and electricity suppliers, and produced toolkits on how to engage with customers. One of the energy suppliers said they had a 61% reduction in complaints on their telephone system by adopting the universal design tool kit. That was in the

course of a three-months trial using the standard and the toolkits.

Finding internal champions within the industry were key; the toolkits we developed were very important because that's what industry asked us to do, they said the standard is fine, but how do you actually apply this; code of practice.

### **So what do we need to deliver?**

The burden of responsibility for initiating, facilitating and sustaining citizen engagement falls heavily on public servants. The magnitude of that 'meaning-making', 'narrative-creating' task can hardly be overstated, so we have significant responsibility in how we do our work and very important work.

Universal design is a road map to lifelong social participation by children, people with disabilities and older people. It also creates and satisfies a new customer base. Finally, it allows for business models that are at once economically sustainable and socially beneficial.

I have a little animation to show. We produced an animation which we just launched earlier this year for the benefit of new designers and undergraduates. Meet the Normals family. (Video played of a cartoon created family, The Normals):

*Meet the Normals, adventures in universal design:*

*Exterior of a house on a sunny day, the Normals are outside. Meet Harry Normal. Harry is the father of the family. He is a stay-at-home dad. Meet Mary Normal. Mary is the mother of the family. She is a manager in the local supermarket. Meet PJ Normal. PJ is the baby of the family. Meet Betty Normal. Betty is the granny of the Normal family. She has arthritis and has lately experienced mild hearing and vision loss, but she is very active and uses a cane to get around. She loves to play the Wii regularly with her grandkids. Meet Suzy Normal. Suzy is 18 years old. She is going to college. She is rarely seen without her iPad and guitar. Meet Johnny Normal. Johnny is 10 years old, uses a wheelchair and loves history and music.*

*Family enter the house.*

*Today will be a treat as Betty is taking the family for a pizza. First we need to get the bus, so let's check the bus times. Parents are using the family PC. Oh, dear! This seems to be very complicated. Suzy uses her Smartphone with super layout instead. Now we've got it. Let's go.*

*For many of us, we never think twice about how we use technology, travel, move in and out of buildings or use the web, but really, when you think about it, we all often encounter problems doing these things. And accept this as a part of life.*

*(Family at bus stop).*

*Consider what it is like for the Normals getting on the bus and their experiences. Firstly, let's look at the bus shelter location. Are things in the way? Is the bus shelter big enough? Simple things like seating, access to information when you need it in a way that makes sense. There are other*



*environmental factors, such as light, noise, and so on.*

*(Bus arrives).*

*And the design of the bus itself.*

*(Betty and Suzy get on. Bus driver asks for fare. Flustered mum drops her purse. Bus keeps going, leaving Betty, PJ and Johnny behind).*

*A design studio in a different part of town. Thanks to good universal design, it doesn't have to be like this. In order to build a working shelter that suits the needs of everyone, we need the right team, so let's meet the team. First off I'd like you to meet Siobhan, she is a software developer. Darragh a civil engineer, Rory is our architect and Paul our industrial designer. Creating the easy to use universally designed bus shelter is a collaborative and fun process - right, guys? Always. Let's see how you do it. Firstly, we have the discovery phase, where all the designers keep an open mind deferring any decision making until they have considered a range of alternatives and approaches to the design. They need to have collected as much information as feasible, including new or existing feedback from people. They need to look at the project from the perspective of the end users, so who are the end users and what do they need? Well, a great way to find out is to involve the end user in the process through things such as focus groups, where we ask them what they think. Then we have the definition phase, where the designers must decide what they want the design to do. To help achieve this, they must keep in mind a range of people using the design, outputs from the discovery phase and consider what they want the design to do. Then we have the development phase, where the designers look at actualising the needs they have identified in the previous stage. This stage typically includes the development of simple preliminary designs and asking people what they think. Lastly, we have the delivery phase, where the designers see if it all works. It may get experts to look at their final designs. Another great way to test the design is through user testing of prototypes, where we test early versions of our products on users with a diverse range of abilities to see what works. If something doesn't work, the designers can go back to an earlier phase and try again.*

*The universal design process with the four phases - discover, define, develop, deliver. Now we have applied the universal design process to designing the bus shelter, let's go back and see what happens this time. Family approach new bus shelter. Dad with PJ in a buggy and Johnny in a wheel chair have an unobstructed path to the bus shelter. Bus shelter is tall enough to accommodate Mary's tall stature. Seating is low enough to accommodate Granny. Bus timetable and fare information is simple and understandable. Starts to rain, bus shelter is large enough to shelter the entire family. Bus arrives. Level entry access to all the family. Thanks to universal design, the Normals can go about their day in a world that accommodates us all. Mum pays without any fuss, she has the fare ready. Family waves and bus goes away.*

*Universal design is the design of a building or place, product, service or technology so they*

*can be accessed, understood and used to the greatest extent possible by all people, regardless of their age, size, ability or disability. Created by the Centre for Excellence in Universal Design.*

End presentation.

## Questions

DELEGATE: A comment about public transport in Australia and the inconsistencies experienced.

DR GERALD CRADDOCK: The bus transport service in Dublin now is 100% kneeling buses. Initially it was told kneeling buses were 35% more expensive than standard buses. However, it was later found that the new kneeling buses are cheaper than the standard bus.

GEOFF BARKER: Geoff Barker from Western Australia. Your illustration of the amazing maze, ramp up to an existing house demonstrates some of the difficulties with retrofitting existing dwellings to be accessible and universal, universally accessible. Is there a code, is there much work happening in that space in terms of providing general support for builders and owners to modify dwellings for universal access?

DR GERALD CRADDOCK: It would be more on accessibility. There would be grants available mainly for the home dweller, rather than the builder, but, again, they would employ a local builder to carry out the work. Our discussion with the Department of Environment is how do we actually design our homes that we don't need to be retrofitted like the great example which is a true example.

CATHERINE BRIDGE: I'd like to answer that question, because Australia has a national clearing house on retrofit for housing and it's called [www.homemods.info](http://www.homemods.info). We've done research work around ramps and lifts and also about alternative solutions. These are internationally peer reviewed and have industry and consumer involvement.

KATHRYN GREINER: My question is related to the education of the public servant sector and your experience in improving their base knowledge for design principles that work for everybody in our community and relate that to what I would call your boundary hopping across government departments. Are there any particular tricks of the trade?

DR GERALD CRADDOCK: I suppose the fundamental is finding that champion, but the core of the work of the Centre was developing resources for the various government departments. We found success with industry, for example, the standard we developed both with the tourism sector and the energy sector which was slightly embarrassing for some of the government departments that we were having more success in industry where you would have thought they would not be celebrating or engaging in universal design.

I think the whole idea of how to use design tools and thinking - for example, we ran a workshop with the IT department in the Department of Justice and this was the first time they ever thought about asking an end user in the design of their website. Once they were told not to design for themselves, but for others, they got very animated around older people. Several of these young guys had

grannies who they'd never thought would be using the website. For example, they were developing work for the social welfare department and this is definitely around the whole area of pensions, so granny would be looking for information. So it was quite eye-opening. It is a long journey, but they embraced it and they've come back several times in the last couple of weeks to ask for more training. It was the best training they ever enjoyed. It is word of mouth, getting core champions that can sell your cause, but it's also producing the evidence, as in this works. So evidence is crucial.