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**Design Research for Our  
Future Selves**

Roger Coleman

'The objects of the College are to advance learning, knowledge and professional competence particularly in the field of fine arts, in the principles and practice of art and design in their relation to industrial and commercial processes and social developments and other subjects relating thereto through teaching, research and collaboration with industry and commerce.'

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## Design Research for Our Future Selves

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'One of Karl Marx's best known aphorisms was that what mattered was not to understand the world but to change it. All the same, he set about understanding it first, and this is a thing that designers are bored by and bad at, and they get virtually no help from most of the schools they go to.'

Lord Esher, Rector of the RCA (Concluding address to the Design for Need symposium, RCA, April 1976.)<sup>1</sup>

The world we inhabit now, in the developed countries, is already a virtual reality of our own making. We surround ourselves with equipment that extends our bodies in astonishing ways, we shape and structure the landscape, we are even altering the climate. In this sense we live in a world of prosthetics not a world of nature. How that world is designed and how we arrive at the ideas and understandings that inspire design ultimately determines the quality of our lives and the nature of our culture. And if design is to humanise technology then it must refer to a broader frame of reference than technology does and embrace the difficult issues that confront society now and in the future. Here we discover an exciting role for research, but at the same time should not forget that art and design is, in the end, about making and doing. There is always a practical outcome, an object, a painting, a piece of software — and so this *contextualising* research must also have objectives and outcomes that are practical, which means working *with* artists and designers, or *through* art and design, to make real things in a real world. Consequently the measure of research in art and design must be in terms of what it gives rise to — changed perceptions, new understandings, objects, products — and the extent to which it changes, shapes, and importantly, humanises the world around us.

In 1976 the Royal College of Art hosted a conference<sup>2</sup> which brought together design practitioners from around the world. Subjects ranged from ecology, environmental policy and the recycling of materials to self-build housing, workplace design, designing for disability (and designing *out* disability with new technology), equipment for emergencies and disasters, and beyond that to design education in developing countries. In short, an enormous spectrum of outward looking, hopeful perspectives within which the designer could be seen making a significant contribution to the larger issues emerging as the pace of social and economic change increased.

Two of the closing papers brought the overall thrust of the conference into focus. Mike Cooley talked about *Design for Social Use*, and Victor Papanek's subject was *Because People Count: Twelve Methodologies for Action*. Design, they argued, should respond

to human needs rather than concentrate on producing yet more *things* for consumption; a shift in emphasis from the object to the user, from the producer to the consumer. In retrospect this, then radical, philosophy is remarkably close to contemporary ideas about consumer power as a potentially positive and discriminating force for change, especially in relation to environmental issues. But the sub-text was not consumerist at all, both speakers argued that human-centred design should address needs that consumerism had failed to reach and that those needs were hardly likely to be satisfied unless fundamental social and political changes were made first.

In 1976 there were three schools of thought on this: first, the beneficiaries of economic development could use their skills, expertise (and wealth) to assist the less fortunate. This approach translated into *intermediate technology, design for disability,*

and so on, and was reflected in many of the conference papers. The second way was more radical, requiring the creation of 'alternative' industries and 'alternative' societies, in which consumption and environmental impact would be low and the level of care and social concern high. The third way — political change (aka revolution) required, at its most extreme, the overthrow of the capitalism system and a new beginning. Since then Communism has collapsed in Eastern Europe, the atomic arsenals are being dismantled, and consumerism has hit the buffers — temporarily we are assured. We have moved on to a very different set of circumstances and problems; on balance the world does not look any safer, nor does the future appear more secure.

The designers gathering at the RCA in 1976 were sure they could change the world for the better, and do so *by design*. They shared a confidence in the power and

effectiveness of design as a tool for improving the quality of people's lives and a belief in the ethical obligations that come with power — a vision and sense of purpose that we seem to have lost. As individuals, we all feel more powerless now than we did then, and without the polarisation of East and West, of Capitalism and Communism, we have no doubt lost some of the comforting bogeys of the past and must now face up to the shortcomings of what remains. Modern concerns are no longer founded on certainties but on uncertainties, and this is the big difference between now and 1976. Then, the divisions between good and evil were much more clear cut, and there is no doubt that the participants in the *Design for Need* symposium stood on the side of good. But between 1976 and 1994 the certainties of the post-war period evaporated to reveal a complexity of intractable environmental, economic and social conflicts, while scientific theories of complexity and chaos have profoundly influenced our thinking about the world. We know far more about it now than we did in 1976, but feel we have less influence over the direction that powerful social forces and new technologies are taking us in.

These changes pose a problem for design: how, in the face of all this complexity, can design be anything more than a problem-solving or styling exercise, how can it reclaim even a small portion of the confidence, certainty and influence it once commanded? Paradoxically, I think this is not such a difficult problem as it appears, and the sub-agenda in 1976 gives us one clue to understanding why, because it assumed that Western materialism (aka Capitalism) stood in the way of a progressive and egalitarian future, hence the emphasis on 'alternative' societies, life-styles and technologies. Already, in 1976, this movement was caught up in a web of political aspirations that would become more, rather than less stifling with time, and this, I believe, is one reason why the idea of designing for social need dropped off the agenda in the 1980s.

Not completely. In 1988, almost as a reaction to the materialism of that decade, a number of factors conspired to bring environmental issues from the margins to the mainstream and place them firmly on the commercial agenda. The existence of an ozone hole in the Northern hemisphere was confirmed, the *Green Consumer Guide* was published, and with Margaret Thatcher's

endorsement in a major speech environmental friendliness was rapidly perceived as a competitive advantage and a commercial virtue, rather than a costly and unprofitable commitment. A new, widespread social concern had appeared and, with keen interest from the retailing and manufacturing sectors of the economy, had become an important context for designers to work in. Not surprisingly, only a small number of design consultancies were equipped to exploit this development, and design education, which could have taken the lead some years earlier and should have been training young designers in the environmental aspects of design, instead trailed even further behind events. Why? Largely because the design community had not expected social or ethical concerns, like the environment, to surface in the mainstream of commerce and industry. Instead it subscribed to the sub-text of 1976 and mistakenly assumed that those issues were marginal, not central to its practice.

In November of 1991 the Chartered Society of Designers organised a conference on *Green Issues in the Design Curriculum* which set out to rectify the fact that design education as a whole had failed to come to grips with environmental issues in any significant way. I gave a paper at that conference<sup>6</sup> in which I suggested that the environment was one of a range of *Contexts and Concerns* that could only be successfully understood and responded to through interdisciplinary research. The environment does not fall within any one discipline but touches on them all, and I believe that the lack of cross-disciplinary research has made it very difficult for colleges of art and design to come to grips with this and similar issues in anything other than a spasmodic and uncoordinated way. At that conference it became clear that design education has an enormous distance to cover if it is to catch up, which gives us a second clue to the disappearance of the confidence in design's effectiveness that was so evident in 1976. The lack of an in-depth understanding of environmental issues in relation to art and design reveals the extent to which educators no longer believe that design is able to address the large and complex issues that now confront us, and this lack of confidence inevitably spreads out from education into the professions as graduates move on from college.

In my paper I suggested that we should place environmental issues within the broader context of present and future social concerns and the responsibilities of designers in relation to them. An understanding of these important concerns can help to prepare students for the different contexts in which they will find themselves working as professionals, it can also lead to innovation, and new approaches to design and design education that are issue based rather than craft or discipline based. It can begin to explore ways in which the different disciplines can interact and overlap and offers the potential of new combinations of materials and processes, of the integration of hard and software, hard and soft information, and the incorporation of intelligence into products. It can also help us to think afresh about how people interact with products and the built environment and, ultimately, to address some of those big issues with a renewed confidence in the effectiveness of design.

Interdisciplinary research is emerging as an exciting source of new ideas in the sciences, and the outcome of the work of DesignAge at the RCA already suggests that this approach can act as a spur to innovation and change in the field of art and design<sup>4</sup>. Building up an understanding of issues like environmentalism, ageing, disability, bodily health and fitness, changing patterns of work, etc., all of which have profound implications for design now and in the future, requires considerable research if it is to be effective, but if we get it right it becomes a powerful tool for change. In my view design is potentially more effective than legislation in bringing about social change, in particular because it is uniquely capable of interpreting and humanising the discoveries of science and technology by acting as an interface between producer and consumer and between technology and the end user. Scientists and technologists may develop new systems for guiding vehicles on the road say, but it is the designer who will deliver that technology as part of a range of new products and in ways that *fit* the product to the user, both physically, psychologically and practically. By exploring and understanding issues that concern and even scare us, we can provide a context within which designers and researchers from a wide range of disciplines can work together.

The kind of research I am advocating will be different to that carried out in other disciplines. It will not, in itself, be fundamental, but will generate new knowledge and understandings by bringing together information from many sources to provide a framework for collaborations that will lead to new and innovative ideas, and I believe we have taken considerable steps to work this out in practice at the RCA. Eighteen months ago we appointed an Environmental Research Fellow, and since then environmental issues have gained ground in every aspect of the College's life and work, from recycling materials to energy waste prevention and, of course, the detail of design project work in all the disciplines. Our research fellow has already built up a significant enabling role, helping us all to understand and to act, and as a consequence change is taking place at a cultural *and* a practical level which translates into new, environment-friendly designs.

*DesignAge*, my own research programme, initiated and funded by the Helen Hamlyn Foundation, has been operational for almost three years. During that time we have raised awareness of the design implications of ageing populations, not just within the design profession and related disciplines like ergonomics, nor simply in education, but across a very broad

spectrum which includes major retailers and manufacturers and, importantly, the age lobby itself. Previously very few people realised that design could play a powerful, and perhaps leading role in shaping a future world that is age-friendly, accessible, considerate, safe and yet exciting to live in, but now that perception is changing rapidly. We did this by bringing together several fields of study: ageing or gerontology, many of the art and design disciplines, market research, sociology, ergonomics, and so on, and demonstrating that each could inform the others<sup>5</sup>. This move was so novel and revealing that in those three short years we have had more than 60 articles written either by us or about us in the specialist, academic and popular press, and on radio and television, are regularly visited by people from around the

world and already acknowledged as a dynamic and leading programme in this new field. During that time we have shown that, in combination, hitherto disparate disciplines can give rise to exciting and innovative insights. As a direct result of our work, in November 1993 the RCA again played host to speakers and delegates from 20 countries around the world, this time as part of the DesignAge symposium organised for the European Year of Older People and Solidarity Between Generations 1993. As in 1976, there was an exhibition and a wide range of seminars looking at the design of vehicles, retail environments, fashion and textiles, products and services, and including an examination of ergonomics, marketing, advertising and education, all within the context of the ageing of societies around the world<sup>6,7</sup>.

Although this issue is gaining momentum almost daily it is still not widely recognised that by the time we reach the third decade of the 21st century half the adults in the UK will be aged 50 or over, and that the same holds true for most of Europe. The common perception is that the third millennium will be a world of young people, whereas although it may begin with the average world citizen aged less than 20, the global population is likely to peak during the 23rd century, and in fact will be growing inexorably older decade by decade well before that. In the First World this phenomenon is far advanced, and in many developing countries the same trend is already discernible. The social implications are enormous and include (on the down-side) increased healthcare and welfare costs; the potential for intergenerational strife as this burden falls on a shrinking number of younger adults; and the prospect of lonely impoverished old age for many. The prognosis could also be exciting and attractive if people can change their attitudes towards age — and in particular their own ageing — and if we begin to arrange the world differently, especially the built environment. But these are very big ifs, and many older people are still rendered disabled simply because public spaces and transport systems have not been designed with them in mind. However, well designed products and environments can work better for people of all ages and offer a competitive advantage to manufacturers and retailers. This convergence marks the beginning of a potentially virtuous circle in



*Chair by Mike Malig, RCA Furniture. The gentle forward slope to the seat, coupled with the rolled front, makes this chair easy to get in and out of, and improves posture. About to go into manufacture with and without arms and in a fixed profile version, the chair exemplifies the benefits of the DesignAge approach*  
 Photograph: Ivan Coleman

which designers, manufacturers and retailers collaborate to meet the specific needs and aspirations of older people, and in-so-doing increase their appeal and sales to a broad spectrum of consumers. The economic potential in terms of jobs and GNP is also considerable.

How can this work in practice? Well, as DesignAge begins to show results in terms of manufacturable products, I would like to offer some examples to demonstrate how contextual, cross-disciplinary research can yield real gains, not just at the theoretical level, but on the street and in the supermarket. The benefits of this approach are considerable and, I believe, will give designers back the confidence that the class of 76 had in abundance.

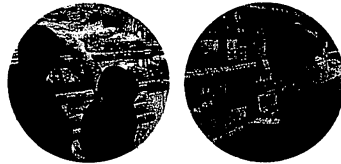
\* \* \*

The year is 1997, Grace and her young grandson Mark are going on a shopping expedition — its much more fun for both of them than staying at home and shopping by TV, and the exercise will do them good too, but it looks as if it might rain so Grace calls a local *European Rickshaw*. The door-bell rings and the driver is waiting for them. The Rickshaw is a small light-weight taxi-cab that will take up to two passengers and luggage or shopping. It costs a quarter of the price of a London Black Cab and runs on environment-friendly electricity or perhaps hydrogen. Because of its low capital cost and fuel economy the fares are cheap and so Grace uses it often — it saves having a car in town and she no longer enjoys driving. They don't forget the bright new fold-away shopping basket Mark's mum and dad bought Grace for her birthday — if the sun comes out they may feel like walking back.

The *Rickshaw* avoids the worst of the traffic in the bus lane, and is allowed into the pollution-free city centre area. They are soon at Grace's favourite shop which looks more like a street-market or arcade than an enclosed shop. The store designers have discovered ways of breaking out of the old-fashioned grid-lock of shelving and checkouts and have opened up the shop frontage with an *active facade* of moveable panels incorporating information, advertising and large-scale visual elements. They have also used the latest scanning and electronic warehousing technology to reduce the need for checkouts and high-density shelving. Changes like these

have made it possible to humanise the shopping environment by reorganising it around social focus points like the café, newsagent and bakery. Grace likes it because it is busy and sociable, like shops used to be! She can choose her vegetables and cheese personally while the boring staple items can be ordered and paid for with a hand-held *ticker* and collected separately or delivered. In a clever way this has brought back the intimacy and conviviality of the traditional market, but combined it with the modern benefits of convenience, choice and value for money.

Photographs: Anthony Lloyd



As they enter the shop Grace takes a *ticker* which she uses to compile a list of items she wants parcelled up for her. The list tells her what she has ordered and what it all costs, and she can tick individual items, by scanning the bar codes on the product, or at the shelf edge, or from a catalogue in the café area. The shelving is curved so that she can easily reach a large area from one point and there is far less bending and stretching than there used to be. There is also far less shelving with goods displayed in smaller quantities and less confusion, all of which makes the routine side of shopping quick, simple and convenient. Once she is sure she has everything she wants Grace pays off her *ticker* electronically, with a switch card, and while her goods are being collected and packed in the electronic warehouse upstairs she and Mark buy fresh pasta in the delicatessen and pick up Grace's prescription from the pharmacy.

This human-centred approach is carried through into the detail of fixtures, fittings and products, with fibre-optic display lighting to reduce glare and improve presentation, glass jars and lids which are easy to handle and open, and attractive chairs that are surprisingly easy to get in and out of. Even the crockery in the café works well for older people like Grace, who often find cup handles fiddly and plates and saucers difficult to grip and carry. There are shopping trolleys that combine functionality with convenience and ergonomic fit, and even offer a perch seat for a short rest. After visiting the newsagent for Mark's favourite comic book and buying a cake for tea they decide they are ready to go back.

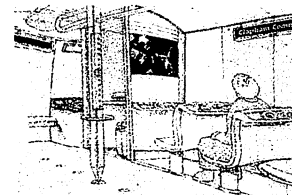
Grace stops to check the electronic small-ads on her way out — she is looking for a garden shed and, seeing two that might do, enters her phone number so she can be called later by the sellers. By now the sun is shining and Grace and her grandson decide to walk back. Rather than have their order delivered, they collect their parcels from the warehouse counter and take them home in Grace's bright new folding shopping basket.

We all know that shopping is not like that at all, but why shouldn't it be? The technology is there, or very nearly, its just that very few people can imagine such things are possible, and this is one of the most powerful abilities that creative designers have: to imagine the future. In this case the scenario was built up by RCA students from several disciplines, and in particular the joint RCA/Imperial College Industrial Design Engineering course, working with the DesignAge team. All of the elements of that shopping trip have been designed, many of them have been prototyped or modelled at life size. Soon some of them will be in manufacture and in the supermarkets, not of 1997 but later this year. And so imagination becomes reality.

\* \* \*

The year is 1998, three people take a bus ride and they all find it easy and enjoyable. Agnes is a senior citizen, she likes the safety of the bus shelter, which is warm and draft-free, and the way the bus docks with the shelter so there are no steps to climb. Chu, a visitor from Taiwan loves the electronic route map with its symbols and tourist information, and the video that tells him about the sights and monuments along the way. Jane and her two children are off to the zoo for the day, she likes the way the ticket machine automatically allows her a concessionary family rate.

Scene from *The Urban Bus*, a scenario by IDEO



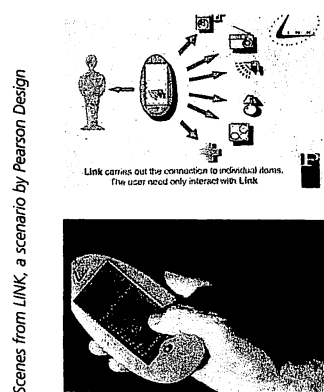
Chu discovers a visual route map on the back of his ticket, and Agnes welcomes the comfort of the smooth ride, soft finishes and glare-free lighting. They are all riding the *Urban Bus* in a scenario elaborated by IDEO, international design

consultants in response to a product challenge set by DesignAge and the Design Business Association. IDEO's bus works better for people of all ages because it pays considerable attention to the needs of older people. The scenario is presented on equipment provided by Apple Macintosh computers and all forms part of the DesignAge symposium — another demonstration of the power of scenario building as a gateway to the future, and only an example of the innovative energy released by the bringing together of gerontology and design..

Another entry in the product challenge is from Pearson Design & Engineering Development, a London based consultancy, ... the year is 2000, and despite our collective hangover from the first day of the new millennium we can all relax and enjoy using the many pieces of technology — the videos and washing machines that have so infuriated us in the past — because we now have our own personal interfaces. Not one of those awful TV controllers with tiny buttons and indecipherable graphics, but a pleasing, tactile device which allows us to communicate by voice and icon with the plethora of gadgets and equipment in our wonderful new *smart* house. 'Technology has a well earned reputation for segregation and isolation.' says Mike Pearson of Pearson Design, 'for creating a distinction between those who are prepared to learn and master new ways of dealing with technology, and those of us who at an ever younger age find the potential benefits are outweighed by complications which result from the need to learn how each software engineer and designer has chosen to make their product interface work.' From this analysis of the problematic way in which technology is developing, Pearson Design were able to conceive of a solution, a personalised *Link* which would remove the obvious interface from a whole range of present and future domestic equipment, replacing it with an object which can act as a link between us — the users — and technology, however it presents itself to us.

*Link* responds to simple voice and icon-driven touch signals to operate increasingly sophisticated appliances. The cooker, washing machine, central heating and all-singing-all-dancing video/CD/telephone/personal manager of the future will be intelligent — up to a point — but if they all speak different

languages then woe betide us. *Link* will act as our butler and interpreter, keeping this electronic staff in order. By identifying the appliance and issuing simple commands like open, close, off, on, up, down we will have instant control without having to read incomprehensible manuals and learn the idiosyncrasies of each piece of equipment. What is more, *Link* will learn what we, as individuals mean by hot and cold — and not just when we refer to water. The product will have an initial vocabulary of about 100 words, but will increase in sophistication as it comes to better understand what its owner means when using them, thereby creating a link with technology that grows rather than reduces with age.



The instruction *television* at 7.00pm will automatically give me the news, or *Emmerdale*, depending on past preference, and there will be a memory that can hold recipes and other pieces of useful but forgettable information, so it will become a very personal pocket book and aide-memoir. We will be able to communicate, quite simply, by infra-red — one click and I can pass on my granny's recipe for Yorkshire pudding — and so individual *Links* can form part of a social *Chain* of user-friendly technology and shared information. An astonishing yet simple and genuinely human-centred concept. My only problem with it would be the fear of losing it along with all that personalised and oh-so-essential data, but no doubt the Pearson Design team have thought of a self-maintaining back-up system to smooth away my anxieties.

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Innovation in art and design, like innovation in science and technology, does not come out of thin air. No matter how hard we cling to the romantic idea of the hermit artist struggling alone in a garret or the apple-inspired astro-

physicist in the orchard, the reality is very different. The time and place of inspiration may well be idiosyncratic — in the middle of the night, in a bathtub, when the apple strikes — but before that there is an intense period of thought and experiment, of practical and intellectual activity which, for want of a better word, we call *research*. This is just as true of art and design as it is of science. We talk of the hard sciences, like physics, and the not-so-hard sciences, like sociology, and there is a subtle sense of disparagement in the terms — physicists may well believe that the hard won facts of quantum mechanics are qualitatively superior to the spongy truths of psychology, and the same goes for engineers who often believe that they deal with practicalities that the stylists of industrial design casually dispense with, while the fine artist lives in the softest world of all, the imagination. The truth is that they all research in ways that are suited to their individual quests and intentions. In art and design there is an enormous distance between the hard facts of space engineering and the imaginative challenge of painting and sculpture — between the knowable and the thinkable. At the end of the day, what unites them are contemporary contexts and concerns which they all attempt to decode, elucidate and respond to. Understanding these contexts and concerns is one very important goal for art and design research, and recognising how design can bring together cultural and technological factors to achieve new ideas for products and services is as important as realising the extent to which our entire contemporary surroundings are shaped by design.

Our vision at DesignAge is of a growing spectrum of contextualising research that can bring design and industry together in a quest to anticipate and meet real needs in ways that are humane and friendly, that humanise technology whilst reaping the maximum benefit from its considerable potential, and do so without losing sight of the broader contexts of the global environment, stress between First and Third World, demographic change, renewability of resources and so on, all the things that science and technology often fail to consider. What we are aware of is that out of the matrix of the creative disciplines as they interact with technological change and the large scale social issues I have touched on comes the world of tomorrow. This is a



cutting edge where past and present combine to shape the future. It is crucially important that we get that transformation right, and that we do so in ways that prioritise human values. The idea of design for need will be revisited many times and in many ways, and the ethical issues raised will become increasingly important, but the humanising of technology will always remain the province of the creative disciplines, and to do that successfully we need our own research base which, I believe will be contextual and cross disciplinary, not narrow and specialised.

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<sup>2</sup>**Bicknell, J and McQuiston, L.** *Design for need: the social contribution of design* (an anthology of papers presented to the symposium at the Royal College of Art) Pergamon Press (for ISCID), Oxford, 1977.

<sup>3</sup>**Coleman, R.** *Contexts and Concerns* unpublished paper, 1991, (copies available from Design Age, RCA).

<sup>4</sup>**Coleman, R and Pullinger, D.** (guest editors) *Applied Ergonomics* Vol 24/1 February 1993 (a special edition based on the proceedings of a conference held at the RCA on May 3 1992)

<sup>5</sup>For example, through a programme of interviews, seminars, lectures and events staged at the RCA and featuring investigations into vehicle design, furniture design, fashion and textiles, and through individual research projects into seating design, the accessibility of retail environments, products for an ideal lifetime home, etc., details of which are available from the RCA.

<sup>6</sup>**Coleman, R.** *Designing for Our Future Selves* (a book prepared as background to the November 1993 symposium and including accounts of individual elements of the Design Age programme) Royal College of Art 1993.

<sup>7</sup>**Lloyd, A.** (curator) *Beyond the Zimmer Frame* exhibition catalogue, RCA, November 1993.

### See also:

**Coleman, R.** 'Designing for Our Future Selves' *Access by Design: the journal of the Centre for Accessible Environments* 58, May/August 1992, pp 10-11.

**Coleman, R.** 'Age Before Beauty: how can designers improve the lives of older people?' *Design Review* 11, 1994, pp 44-47.

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