a circus of ideas

revisiting Archigram's visions for
education and architecture in the information age

neil selwyn
london knowledge lab, uk
june 2008

Correspondence: Neil Selwyn, London Knowledge Lab,
Institute of Education, 23-29 Emerald Street,
London WC1N 3QS, United Kingdom

e: n.selwyn@ioe.ac.uk
t: +44 (0)20 7763 2151
f: +44 (0)20 7763 2138

a circus of ideas

revisiting Archigram's visions for education and architecture in the information age

Abstract: The UK architectural collective Archigram are considered to have been one of the most innovative and influential design teams of the late twentieth century - responsible for a series of neo-avant-garde conceptual projects which railed against post-war modernism, embraced a new post-industrial technological era and set a precedent for much of what is now accepted as mainstream contemporary architecture. Anticipating neatly the concerns of a fast globalising world, the group's designs proposed a reflexive form of architecture which was centred firmly around the needs, desires and demands of the modern citizen. As such Archigram's work pre-empts many concerns later raised with regards to the 'information age' and can be seen as early expressions of now influential ideas of ubiquitous computing, personalisation, convergence, cyborg theory and network society.

This paper argues that amidst the fulsome praise now directed towards Archigram's designs for technological megastructures, capsule design, nomadic living and the like, the group's work on educational architecture and imagined educational forms of the future has been somewhat overlooked – especially in terms of their envisaged convergence of education, technology and architecture. Through an examination of three of their major educational projects (the Plug-In University, Ideas Circus and Invisible University) the paper discusses how Archigram offer(ed) an insightful and provocative alternative set of values, motivations and goals which contemporary educational technologists and architects would do well to consider. The paper concludes with a discussion on how Archigram's work addresses a set of key problems facing education in the twenty-first century – i.e. how to provide informal, *ad hoc* and deinstitutionalised educational opportunities in as inclusive, unobtrusive and playful way as possible.

Keywords: Archigram, architecture, avant-garde, adult education

a circus of ideas

revisiting Archigram's visions for education and architecture in the information age

"If only for a moment, if only in an image flickering on the screen, Archigram zapped us into techno-utopia" (Betsky 1999, p.61)

I - INTRODUCTION

The UK architectural collective Archigram are now considered to have been one of the most original, innovative and influential design teams of the late twentieth century. Throughout the 1960s and early 1970s the group of six British architects working under the 'Archigram umbrella' (Chalk 1972, p.243) were responsible for a series of neo-avant-garde conceptual projects which railed against post-war modernism and set a precedent for much of what is now accepted to be mainstream contemporary architecture. Archigram were certainly not alone in their pursuits – they were heavily influenced by the work of Buckminster Fuller and their interests overlapped with other technological utopianists of the time such as Yona Friedmann and the Japanese metabolists. Yet Archigram's canon of work has endured more than many of their peers – appearing to contemporary eyes as a curious artefact of a bygone pop culture whilst still imbued with a profoundly futuristic and other-worldly air. Nearly fifty years since the group first convened, Archigram's work retains a 'shock of the new' and the ability to challenge preconceptions about role of technology in (late)modern society.

Posterity was certainly not one of the group's key concerns whilst working. The name 'Archigram' (a melding of 'architecture' and 'telegram') was intended to convey a sense of urgency, expendability and instantaneous communication with the outside world. The group described its output as "something to stand alongside the space capsules, computers and throw-away packages of an atomic, electric age" (Warren Chalk 1963, cited in Blueprint 1994, p.8), with their designs reflecting the spirit and aesthetics of pop-art, comic books and space travel coupled with an innate sense of irreverence and playfulness. Yet it would be a mistake to dismiss Archigram's work as an irrelevant anachronism. Whilst embracing the 1960s' interest in consumerism, disposability and 'throw-away culture' (see Whiteley 1987), Archigram's designs and underlying techno-libertarian manifesto addressed a set of issues which resonate

profoundly with current societal concerns such as individualism, mobility, risk, reflexivity, and everyday life in a globalised world.

Archigram's was largely a virtual project, with the group choosing to work through drawing and publication rather than physical construction – resulting in what Sadler (2005) describes as an “architecture without architecture”. Their work and ideas were disseminated primarily through nine issues of the self-published Archigram magazine, articles in sympathetic architectural journals of the day such as *Architectural Design*, as well as talks, lectures and travelling exhibitions featuring the work of some or all of the group's core members. As such Archigram's influence has since far out-stripped their built product of the time, with the 1960s and 1970s witnessing the construction of little more than a children's playground in Milton Keynes and a swimming pool enclosure and kitchen block for the pop-star Rod Stewart. Whilst this lack of built output was bemoaned at the time as the cultural equivalent of the Beatles being without a recording contract, it extended Archigram's sense of theoretical expression and experimentation beyond that of their ostensibly more ‘successful’ counterparts, thus leaving the group free to design what Stungo (2004) calls ‘the greatest buildings never built’.

Archigram's work coincided with a period of rapidly expanding artistic freedom and imagination within the UK's creative industries, with the group sometimes portrayed as an architectural off-shoot of the Pop-Art movement. This lent Archigram a certain notoriety which until recently could be said to have hampered their standing, with some commentators content to dismiss Archigram as a ‘hip’ but hardly essential “architectural equivalent of the London's swinging sixties” (Betsky 1999, p.59). Indeed, some members of the group have later attempted to decry their influence as little more than “a sort of interesting by-water which has had absolutely zilch affect on anything” (Greene 2006). Yet whilst the aesthetic element of their work was decidedly of its time, the conceptual and theoretical tenets of Archigram's designs displayed a defiant and sometimes belligerent futurist leaning which retains a relevance to many of the social and built environmental problems we face today. For all their bravado and bombastic styling, Archigram's projects such as the ‘Walking City’, the ‘Plug-in City’ and the ‘Instant City’ closely questioned social arrangements in a near-future which was dominated by mobile, networked and disposable technologies. Many of these designs therefore took a ‘high tech’, light weight, infrastructural approach, boasting features such as personalised clip-on technology, throwaway environments, space capsules and mass-consumer goods. As such the group were directly inspired by the new technologies of the space race and Cold-War (what the architectural critic Rayner Banham at the time termed the ‘second machine age’), thus allowing them to imagine environments which existed above the constraints of the built environment of preceding eras. Thus Archigram's work pre-empted many concerns later raised with regards to the ‘information age’ and can now be seen as a nascent expression of now influential ideas of ubiquitous computing, personalisation, convergence, cyborg theory and network society. Indeed, anticipating neatly the concerns of a fast globalising world, the Archigram project proposed a reflexive new form of architecture which was centred firmly around the needs, desires and demands of the modern citizen.

Despite this theoretical foresight, the legacy of the Archigram group is only now beginning to be fully acknowledged. Their direct influence on high-profile buildings

such as Renzo Piano's *Pompidou Centre* and Norman Foster's *Swiss Re* building is clear to see, as is the use of many of their concepts in building designs the world over. Indeed, there has been a recent resurgence in professional recognition of Archigram's work – with a proliferation of books and global touring exhibitions complementing their award in 2002 of Great Britain's highest architectural honour, the RIBA Royal Gold Medal. Yet it is our contention that amidst the fulsome praise now being directed towards Archigram's ideas on technological megastructures, capsule design, nomadic living and the like, the group's work on educational architecture and imagined educational forms of the future has been somewhat overlooked – especially in terms of their envisaged convergence of education, technology and architecture. With this in mind, the present paper sets out to revisit Archigram's designs for education and ask what can be taken from their work into the ongoing debates over technology and education of the early twenty-first century.

II - ARCHIGRAM AND EDUCATION

Whilst most often discussed in terms of issues of technology, mobility and the environment, Archigram's work was also infused with a passionate concern for education and learning. Indeed Archigram was an inherently educational project with the group boasting strong links to UK and US schools of architecture, not least London's Architectural Association. Against this background, the Archigram team deliberately pitched their ideas to upcoming young architecture students who they saw as potential agents for change and innovation. Through the Archigram journal, peripatetic lectures, conferences and exhibitions the group fashioned itself as an anti-architecture school, seeking to offer students an alternative from the 'dreary' educational establishment and dry confines of the classroom and architectural method. As Simon Sadler (2005, p.8) notes, "to a great extent Archigram came out of, and was sustained by, the schools of architecture, and it was nourished by a high ideal of what education, and architectural education in particular, should be about: the cultivation of individuals working in concert, uninstitutionalised".

As Sadler infers, Archigram's desire to revitalise and reform architectural education was fuelled by a general interest in adult education, and a commitment to encourage learning of all kinds. Indeed, much of their work displayed a desire to explore the stimulation of education and learning amongst adults as a force for social change. Thus alongside the overtly sensory, pleasure-seeking concerns of some of their projects, Archigram also sought to offer radical solutions to socioeconomic problems of the time, not least increasing the prominence of education and learning in a leisure-led consumer society. Archigram saw learning and information as central tenets of modern society, alongside entertainment, leisure, work, shopping, sex and relationships. Thus many of their designs addressed (either explicitly or implicitly) issues such as the rapid expansion of British higher education, the widening of educational participation beyond elite social groups and the cultivation of mass informal learning within communities. These concerns sat alongside a recurring interest in the role of technology in individualising and de-institutionalising the learning experience.

Given the prescience and sheer ambition of much of their work, it is unfortunate that the educative aspects of Archigram's output have remained relatively unexamined by the architectural and educational communities. Thus the remainder of this paper takes time to attend specifically to some of the central ideas and concepts surrounding formal and informal education in the Archigram canon – reassessing their designs and concepts in the light of the early twenty-first century and asking what, if anything, can be gleaned from their innovative but idiosyncratic take on education in a technology-driven world. In particular we can examine the evolution of Archigram's conception of education through three of their major projects: the 'Plug-In City', the 'Instant City' and their later work on 'Locally Available World Unseen Networks'.

i) Education within the 'Plug-In City' - the plug-in university

The Plug-In City was one of the first Archigram projects to gain prominence within the international architectural community. Increasingly interested in notions of expendable architecture and the 'megastructure', Archigram began to speculate about new urban environments which could be programmed and configured to facilitate change. Plug-in City was a collection of different proposals developed by Warren Chalk, Peter Cook and Dennis Crompton all feeding into a prevailing architectural interest of the time with developing standardised but flexible mass-produced structures. In this manner, the Plug-In City offered a deceptively simple solution to fluid metropolitan living. The design was based around a main 'frame' in the form of a multilayered network of tubes carrying essential services and means of transport (see figure one). In the initial designs, a series of cranes operated from a railway at the apex of the structure to move individual units in and out of position. These units were assigned different functions, including housing units, life-work spaces, plug-in shops and rentable offices. Although a gargantuan structure, the Plug-In City was deliberately designed to facilitate flexibility, change and planned obsolescence. Indeed, the main frame was intended to be operational for no more than forty years, with individual units plugged-in and plugged-out on a frequent basis. In this way the Plug-In City could fulfil what Archigram saw as a demand for an increased individualisation and responsiveness of architecture in modern society. As Warren Chalk reflected:

“a plug-in city – a mega-structure of shining steel, concrete, plastic and glass with circular towers piercing the sky-fields – with cranes on top hoisting and plugging in plastic capsules for the child-people to live and work and play in ... a city where the child-people could enjoy freedom and choose their own way of life” (Chalk 1976, p.154).

Central to this vision of the Plug-In City was an ever-evolving and changing environment - based upon the gradual infill, replacement and regeneration of parts which could be grafted on to the central megastructure in response to the needs and desires of its inhabitants. Thus when necessary, one function of the Plug-In City could be replaced by another to occupy the same location. Although the group worked on a number of Plug-In services, perhaps the most detailed explorations of the concept were the designs for the educative nodes. The notion of the 'Plug-in

University' was first developed by Peter Cook in 1963 in collaboration with a group of his students who were set the task of analysing the future of universities. Whilst appearing to retain elements of the traditional university campus such as student study bedrooms, seminar rooms, libraries and so on, the designs were based on a distinct "loosening-up of parts" and "always-complete-but-never-finished" nature (Cook 1999, p.43), in stark contrast to the conventional notion of the fixed higher educational institution (see figures two and three).

Figure one. The plug-in city

Figure two. Plug-in university node for the plug-in city – side view

Figure three. Plug-in university node for the plug-in city – over view

The 'campus' area of the Plug-In University was designed to be underpinned by a number of tension skin-covered decks slung on trays, thus constituting the basis of the university 'node'. Different plug-in units of the university could then glide into position across this plane as and when required. For example, it was proposed that each student be allocated a standard study-room in the form of a metal box that could be moved from place to place across the university campus as the student saw fit. In this way the campus was conceived as a nomadic plane with students moving

their boxes from one location to another, whilst information was able to be piped from the node at the centre. Cook therefore saw the Plug-In University as facilitating the dispersal of study into different domestic, work and leisure areas of the Plug-In City and, it followed, the lives of its citizens. As he reasoned, “the idea of the ‘university’ as such may go but plug-in system allows for physical change” (Cook 1999, p.43).

ii) The ideas circus and the ‘instant’ educational dynamic

These themes of mobility and flexibility were soon extended and expanded in later Archigram projects, not least Peter Cook’s 1967 ‘Ideas Circus’. Unlike the responsive, learner-driven nature of the Plug-In University, this subsequent project focussed on the notion of bringing education and learning to a mass of potential learners, with the Ideas Circus conceived as a peripatetic educational road-show. The concept stemmed from the experience of delivering Archigram lectures and seminars which prompted the group to reflect on the common logistical demands and repeated rituals of the seminar and exhibition process. In particular they sought to overcome the lack of interchange of ideas between one ‘performance’ and the next. Thus the Ideas Circus was conceived as a means of sharing and exchanging information among distant and previously unconnected groups of people. As with many of Archigram’s designs, the basic concept was wildly ambitious yet relatively simple, making use of a range of more prosaic technologies than the Plug-In University. In essence the Ideas Circus took the form of a mobile infrastructure for hosting educational events and services which was to be transported around provincial towns on trucks and other vehicles (see figures four and five). Once in location, hastily erected tents and inflatable structures would be complemented by projection equipment and other information technologies to offer local educators and citizens the opportunity to learn from each other as well as utilise the educational content carried by the Ideas Circus itself. Before starting out on its tour the circus would be pre-programmed with basic film and slide material which could then be augmented at each location by whatever educational activities were taking place. Alongside the creation of new knowledge, careful attention was paid to the feedback function of the Ideas Circus, with *verbatim* documentation of seminars, documents and films being left behind as the circus packed up, left town and moved on to its next location. As Archigram (2005, p.115) described it:

“a circus travels from town to town, offering entertainment as it goes but the aims of the Ideas Circus was not to present performances, but create intellectual exchange. Complete with facilities for symposium, lectures and presentations, this mobile structure was to travel from place to place, encouraging intellectual exchange with local people wherever it stopped. The Ideas Circus would eventually move on to its next location, but having visited a place, the network it created would grow organically, creating links between people”.

As this description suggests, a defining feature of the Ideas Circus concept was the cumulative acquisition and redistribution of knowledge, with each visit building upon the educational content created during previous visits. The learning and knowledge content of the Ideas Circus was intended to be ‘topped-up’ during each visit, which could then be shared and expanded upon in future visits. Thus there was an overall

intention of establishing an interconnectivity between the local learning resources and learners which had been visited by (and therefore enrolled into) the Ideas Circus network. As Ron Herron and Peter Cook (1970, p.566) described:

“the Ideas Circus had a prescribed area of function – that of taking a sophisticated educational servicing from town to town and more important, using the cumulative effect of one community’s thoughts upon the other. It was this cumulative potential of the English provinces that has remained the constant idea”.

Archigram reasoned that the Ideas Circus would compensate for shortcomings in the local provision of learning opportunities, which they argued were being extenuated by people’s growing exposure to global information via television and other new media. In this way the travelling road-show would add value to already-established local education providers and prompt new forms of collective action. As Warren Cook (1999, p.100) argued, “the idea would be circulated between major provincial centres, tapping local universities, bleeding-off them personalities, documentation and such things as film of laboratory experiments, then carrying them on to the next town”. Whilst this notion may appear to convey a sense of metropolitan arrogance, Archigram’s intention was in fact one of usurping the power of the city in the hope that “the sum of the provinces might become the exciting scene, with the old metropolis becoming a cultural as well as a physical embarrassment” (Herron and Cook 1970, p.566).

IDEAS CIRCUS

PRINCIPAL COMPONENTS

Figure four. Ideas circus – designs for truck-based delivery

Figure five. Depiction of the air-ship borne Ideas Circus – with an emphasis on language learning

A defining feature of the Ideas Circus was an instantaneousness and lightness of touch, with the execution of the project intended to take the form of a covert and almost guerrilla operation. Focussing on a main ‘turn-on town’ and then ‘buzzing’ to other satellite locations, the group’s plans (such as establishing a “string of teaching carels either to be shoved inside a local building or one of the tents” [Herron and Cook 1970, p.568]) conveyed a sense of urgency and an element of surprise. As the group reasoned, “this has to be quick - it is on the scale of half an hour and five thousand people and amazement and the whetting of appetites” (Herron and Cook 1970, p.568). ‘Old’ technologies such as trucks, tents and projection equipment were employed to give the Ideas Circus the degree of mobility required to allow it to fully permeate the local environment on a temporary basis. As well as a spontaneous colonisation and stimulation of educational activity (the group imagined, for example, how “some vehicles could hive off for an afternoon teach-in at the local Women’s Institute”) there was a distinct emphasis on following and augmenting the learning opportunities which were already in place. As Herron and Cook (1970, p.570) reflected, “in fact we are a little more pragmatic ... All the time a primary interest was in ... being able to knit into any place as effectively as possible”.

The notion of the education-specific Ideas Circus was soon elaborated into grander designs for a wide-ranging ‘Instant City’. This travelling metropolis was also conceived along the lines of an “open-air rock concert on a nationwide tour”

(Archigram 2005, p.10), intended to bring all of the experiences of the 'metropolitan dynamic' to provincial towns and their citizens via the provision of a network of entertainment, leisure, information and educational opportunities. Designed by Peter Cook, Dennis Crompton and Ron Herron in 1968, the Instant City was to be transported primarily by balloons and airships rather than the road-borne Ideas Circus, but otherwise retained the core ethos of the earlier project (see figure six). The Instant City was to be erected rapidly to form an entertainment complex which collated and hosted events, displays and programmes which were supplied in part by the local community and partly by the over-arching 'city' agency – thus bringing together events that would otherwise occur separately in the district or even who have not taken place at all. Tellingly, the Instant City retained “educational servicing” as a key component of its provision of metropolitan services – talking of “study carels, self-pace skill and learning, workshops, CCTV, audio visual library”. Plans show Instant City elements such as ‘school units’, ‘study/think/infoplay centres’ and ‘seminar tents’ interspersed between ‘electronic cabarets’, show rings and promenades (see figure seven). Thus the collective and coercive spirit of the Ideas Circus was expanded to encompass all areas of everyday life, whilst retaining education and learning as a core element of its function.

Figure six. Stages of the air-ship borne Instant City.

Figure seven. Instant city tune up.

iii) The invisible university

Although their work on megastructures like the Instant City, Plug-In City and the earlier 'Walking City' gained Archigram its greatest exposure and, indeed, formed the basis of its reputation for innovation and insight, the team's later work reflected a distinct shift of interest towards profoundly individualistic, almost invisible architecture and design. This minimalist streak had been apparent in some of the group's early work, not least Michael Webb's (1964) designs for an inflatable wearable house (the so-called 'suitaloon') and the primitive 'info-gonk' educational virtual reality headpiece (figures eight and nine). Both these designs were precursors of what Archigram came to call "invisible architecture", a concern with blending design more sympathetically with the environments and the non-fixed lifestyles of modern technology-rich society. Thus as the 1960s drew to a close Archigram were increasingly attempting to provide ecological solutions to the everyday problems of modern man - who David Greene characterised as the "electronic aborigine ... weav[ing] his life almost chameleon like into his environments" (Greene 1971, p.200).

Running throughout this line of thought was an interest in creating ways of allowing people to 'do their own thing'. As was tersely stated at the time, "doing your own

thing is important. Unfortunately, however, in terms of doing your own thing, architecture is clearly not working” (Greene 1969, p.110). To this end various members of the Archigram group concentrated on a series of designs towards the end of the 1960s where the environment retained its natural appearance but was serviced by unseen networks, referred to as ‘L.A.W.U.N.’ or ‘Locally Available World Unseen Networks’. The first phase of the LAWUN project saw a proposal for ‘log-plugs’ and ‘rok-plugs’ – access points for utilities and communication services incorporated discretely into rocks and logs, and to be located by travellers using mobile dashboards and homing devices. Having ‘plugged-in’ to the access points and selected the required services, the traveller could pay for them using attached credit card machines. As David Greene reasoned, these outdoor utility points had the potential to deliver any service to any person at any time they desired, whilst circumventing the need for an intrusive built environment: “the whole of London or New York will be available in the world’s leafy hollows, deserts and flowered meadows”. Greene even went as far to conceive of “a fully serviced natural landscape” or ‘bottery’, in which the logplug and rokplug strewn environment was serviced by near invisible mow-bots: “everybody wants a house full of robots but no one wants it to look like a house full of robots – so why not forget about the house altogether and just have a garden and a collection of robots”.

Figure eight. David Greene rests in a Suitaloon whilst immersed in an infogonk

Figure nine. Two models of the infogonk virtual reality educational headpiece

Although somewhat fanciful even by Archigram's standards, the LAWUN designs perpetuated the group's interest in the theme of nomadism and what they termed "the effects of technology in dispersing things" (Greene 2001, p.198). The notion that one's home, office or classroom could be primarily facilitated by mobile technologies rather than bricks, mortar or steel was central to the latter phases of Archigram's work and the group's burgeoning interest in "mobile devices for nomadic human beings" (Archigram 2005, p.10). Thus this later stage of the Archigram project saw the architect assigned to the role of making the most of the natural environment to facilitate a mobile lifestyle. As David Greene later noted, the work was based upon "a poetic idea ... an absurd dream of being in a bucolic landscape with mobile phones and things like that ... in McLuhan's sense you could have everything anywhere" (Greene 2006). Within their desire to encourage a closer relationship between man, electronics and nature, Archigram become more interested with "making architecture tread more lightly upon the earth" (Sadler 2005, p.178), an ambition taken to its logical conclusion in the second LAWUN project – the "invisible university". As Greene proposed in 1971:

"as electronics gets more and more sophisticated, maybe man can become more and more primitive ... make illegal the construction of any new building – a declared moratorium on buildings; a search for the LAWUN Project number 2, the Invisible University" (Greene 1971, p.200).

As its name suggests, the Invisible University project explored the potential for technology to deliver teaching and learning in a truly extra-mural context, i.e. that of the natural world. Here the immediate environment – be it a garden, field or desert – had the potential to function as a site for educational activity providing that access

points for the requisite unseen networks had been installed. This logic resulted in a series of designs for the concept of a “university in a field” (Greene 1971, p.200), although the group were only partially successful in overcoming the practical need to accommodate the ‘hardware’ of learning. Thus the proposals for the Invisible University played with the idea of service points “just lying about, no fuss, no landscaping ... [just] waiting to be used” (ibid), as evinced in the placement of a refrigerator-based access point in a desert landscape (see figure ten). Another design showed the “traces of the visible university” as little more than marks on a field, delineating the territory where learning may take place if so wished. Conveying the difficulty in embodying their theoretical assertions in (non)physical forms, Archigram reflected that “we obviously need hardware at the moment, but we obviously confine its uses to pre-electric life-styles and constraints ... it is ridiculous to continually use electronics as a device for supporting industrial revolution life-styles (and hence an ‘architecture’ to service these lifestyles)” (Greene 1971, p.200).

Figure ten. Manifestation of the invisible university. The refrigerator acting as a plug-in point

Figure eleven. 'It's a ...?'

This idea of being able to access “the world’s universities” whilst being “free from the static physical restraints of these environments” (Greene 1971, p.200) was also pursued in Peter Cook’s “Its Not” manifesto at around the same time (see figure eleven). Here Cook both applauded the recently founded UK Open University for its virtual ideals, but criticised playfully what he saw as the lack of courage of conviction in this self-proclaimed ‘university of the air’ retaining the trappings and physical manifestations of a university setting. As the following excerpt illustrates, Archigram were persistent in their desire to relocate access to education and learning as far away from the confines of the educational institution as possible, with no fear of alienating the education establishment in the process:

“Its not a university – it can’t be ... show me, where’s the building, where’s my label? I have to sit in the comfort of my own home with the telly or radio on to be part of it, with an occasional chat with my tutor in the drill hall. That’s not a university, a university is a lot of buildings and lot of people milling around on bicycles ... come on. The Open University asks that you are 21 (pity not 16?) or over and have the energy to fill in the application form. Of course there is a mandatory one week residential summer school session for the 25000 undergraduates – surely this will take place in an enclosure of some description and give, for a week at least, some physical manifestation of university. But supposing some nut puts it under canvas, paper sleeping bags, pneu’s or the like...” (Cook 1999, p.137).

III - MAKING SENSE OF ARCHIGRAM

These projects, and the ideas and arguments contained within them, leave us with a wealth of theoretical challenges (as well as some still impracticable solutions) to the nature of everyday life, environment and architecture in the high-tech post-industrial age. The chronological development from the Plug-In University, Ideas Circus to the Invisible University reflects a noticeable shift in the Archigram group’s thinking about

technology, mankind and living. Indeed, one can trace a deliberate diminishment of physical architecture throughout these projects or, as the group themselves put it in the seventh issue of the Archigram journal, a conscious move “beyond architecture”. This was apparent not only in the shrinking size and scale of the designs (from the mega-structure of the Plug-In City to the back-pack sustainability of the electric aborigine), but also in the descent from the macro level of the city community to the micro-level of the individualised experience. This deliberate reduction ultimately led to the logical (and practical) conclusion of the Archigram vision itself. As the group later reflected, “the Futurist gear of the Plug-In city was necessary at the time in order to make the statement that Architecture does not need to be permanent. Later this [was] simplified to Architecture does not need to be” (cited in Sadler 2005, p.125). As such Archigram could be seen as having thought itself out of existence by the mid 1970s.

This self-determined obsolescence typified what some commentators perceive as the ludicrous and ultimately inconsequential nature of Archigram’s work. Indeed, the fact that many of Archigram’s ideas and concepts assumed forms which were “schematic rather than real” (Barnstone 2006, p.57) and were often taken gleefully beyond the limits of practicability, led to the group’s work being denied serious credence by their contemporaries. As the critic Rayner Banham (one of Archigram’s staunchest supporters) opined at the time, the group were “stoned out of their minds with science-fiction images of an alternative architecture that would be perfectly possible tomorrow if only the University (and especially the Law of Gravity) were differently organised” (Banham 1966, p.64). Yet it is far too easy to let the self-proclaimed “jolly jokey” (Chalk 1972, p.243) exterior of much of Archigram’s output convey an undeserved sense of absurdness and worthlessness. Although, like all fairy-tales, “Archigram’s floating world is a place of dreams, which are never so compelling when they are retold in the cold light of day” (Barnstone 2006, p.86), the group’s sense of playfulness masked a profound seriousness and, we would argue, theoretical imagination which it is easy to overlook. As Simon Sadler (2005, p.4) notes, “if anything, the more cartoon-like Archigram became and the more preposterous its proposals, the more it merits sustained attention”.

Central to the continued currency and relevance of Archigram’s work was their underlying allegiance to progressivism and a recurring social consciousness. This, if nothing else, lends their work a resonance and relevance with contemporary society (Jacob 2004). Beyond their colourful sci-fi and pop-art stylings, Archigram has much to offer the twenty-first century reader in terms of making sense of the world of today and the world of tomorrow. As such “the group’s drawings and texts are just as rewarding when read iconologically – as arguments about style, society, modernity [and] technology ... as they are when scrutinised for facts of architectural technique or principle” (Sadler 2005, p.ix). One should not, however, expect ready-made solutions to be found in designs like the Ideas Circus or Invisible University. At best, as the group obstinately pointed out, Archigram “do not offer conclusions [but] some pointers which suggest a way in which we might go next” (Herron and Cook 1970, p.566). In fact Archigram revelled in posing deep political and ideological questions without feeling the need to elaborate on the finer details, with their work intended to be provocative and polemic but not to provide ready-made solutions. As David Greene (2001, p.196) reasoned:

“we never made any real attempt to explain We just said ‘cities are in the information business – you better believe it’. There was no attempt to move from that to ‘lets discuss this as a question’. I don’t think people knew what we meant really. It was, in a sense, a deliberate refusal to explain. Either it communicated to you or it didn’t”.

Thus whilst stressing the visionary aspects of their work, we would certainly not present Archigram’s output as being beyond criticism. Although their projects offer a seductive vision of a glamorous future age, a range of social, political, economic and environmental issues are left unattended, with scant attention paid to what sort of society, economy or establishment was to support Archigram’s “architecture of flux and fun” (Sadler 2005, p.6). As such Archigram’s projects can be criticised with some justification on many different fronts. Their unenlightened engagement with gender issues and the role of women in society was, if we are to be generous, typical of the era. Mini-skirted ‘birds’ were clumsily inserted into a limited set of subservient gendered roles, resulting in what has since been derided by one critic as adolescent and oneristic meanderings of male suburban bed-sit dwellers (Melhuish 2002). Their unreconstructed take on gender issues leaves some twenty-first century readers noting that “Archigram’s take on the city ... is very much that of the male observer ... images generated by the male gaze” (*ibid.*, p.8). A similar cause for disjuncture was the group’s apolitical embracing of consumerism and their uncritical enthrallment with the expendable ‘new’ – a stance which certainly places many of their designs at odds with present-day concerns for environmental issues. As Dinah Casson reasons, “green it was not, with its throwaway pods and dependency on the artificial” (cited in *Blueprint 1994*, p.9). Yet perhaps most disabling was Archigram’s post-class take on the (non)stratification of society, with their work imagining the traditional working-classes to have been somehow liberated through affluence and leisure and subsumed into “the casual, expendable style of a leisured consumer society” (Sadler 2003, p.565). This sociological naivety is, for some commentators, a fundamental flaw to the Archigram legacy. As Clare Melhuish (2002, p.8) contests, Archigram’s output is undermined by a “cultural chasm between the suburbanite’s fantasy and the real experience of the inhabitants of the inner-city for whom it is a tough, unrelenting environment ... less an image of fun and adventure than a bitter social scourge”.

At best then, Archigram’s work undeniably suffers from a wilfully apolitical take on modern society, which the group considered to be a necessary strategy if architecture and architects were to retain a significance in a world undergoing rapid social, cultural, political and economic transformation along global lines. Indeed, beyond the bold sloganeering, often garish aesthetics and pop-sensibilities of their work, the group were decidedly conservative – offering solutions which were “technocratic rather than anarchic, individualist rather than hippie, grounded as much in 1950s’ assumptions of affluence as 1960s’ commitments to redistribution” (Sadler 2005, p.8). This apolitical take on modern society is nowhere more apparent than the group’s optimistic stance towards technology. Indeed, Archigram wholeheartedly embraced technological determinism, imbuing their work with the technoutopian spirit of authors and thinkers such as Marshall McLuhan, Daniel Bell and Nicholas Negroponte. As David Greene reflected, “Archigram would say that technology and consumption are going to change the way everybody lives, so the city must alter and architecture has to alter” (Greene 2001, p.198). Thus whilst their work has been lauded as allowing the architecture of the post-war era to regain its

“technological nerve” (Sadler 2005, p.5) and achieve “the effortless translation of technology into architecture” (Pawley 1976, p.27) this blatant determinism and avoidance of the political, economic and commercial realities of new technologies can be seen to sit uneasily with the subsequent experience of actually living in the information societies that Archigram were planning for. As Arron Betsky argues:

“the idea that the miniaturisation of technology would liberate us by restoring our bodies’ relationship with nature, one of Archigram’s central tenets, has turned out to be false. Instead of meandering naked through a high-tech Eden, we scurry through fluorescent-lit environments whose scale overwhelms us, pace unsettles us, advertising blares at us, and corporate-chic streamlining numbs us ... We are not juiced by technology and freed by flexible systems, but live in bland boxes and accept the most minimal, remote-control relationship with the social, commercial, and political forces that shape our world” (Betsky 1999, p.61-63).

Yet in these present times when technology is approached in a more cautious, considered and one may argue cynical manner, Archigram’s seemingly naïve take on technology and society should be seen as an asset – or at least cause for taking their ideas more seriously than we may otherwise be inclined. In fact, we would argue that, for all its determinism and political non-engagement, Archigram’s take on technology and social change is far more nuanced and insightful than most utopian tracts on technology emanating from the 1960s onwards, and is therefore worthy of careful reconsideration rather than knee-jerk rejection. This, we feel, is especially the case with regards to the group’s ideas on education, technology and society. In an era where educational commentators are often hamstrung by the mundane realities of the ‘educational effectiveness’ of ‘information and communications technology’ or else the fear of being seen to be technologically determinist, Archigram’s work offers a left-field but highly insightful reminder of the ways in which education technology could potentially be used in society. Indeed Archigram’s more outré concepts should be seen as “attempts to find symbolic forms of expression appropriate to the times” (Lachmeyer 2003, p.482) rather than primarily practical proposals. Thus above and beyond questions over the practicality of inflatable houses or walking cities, we would argue that the Archigram project (re-)presents us with some key ideas about education, technology and society in the twenty-first century which have been obscured or even abandoned as the anticipated information age of the 1960s and 1970s has been made real. It is the reclamation of these ideas in mind with which we conclude our discussion.

IV - RE-IMAGINING EDUCATION THROUGH ARCHIGRAM’S EYES

In some respects Archigram’s imagining of education, technology and society is redolent of a number of now familiar ideas and theoretical debates within the development of education and technology. Perhaps most obvious of these themes is the diminished importance of the physical artefact and the heightened importance of individual activity. In designing educational forms for the future Archigram’s focus lay not with providing educational buildings *per se* but with providing educational services. As such their work distinctly privileged informal activity rather than formal architecture, implying that the primary role of the architect is to break education

free from the built confines of the classroom and offer “opportunities for action and interaction with other people and technology” (Barnstone 2006, p.57). As Peter Cook (1967) put it, architecture should be seen as “not necessarily a series of ‘buildings’ as such, but as an infinitely intermeshed series of happenings” (cited in Crompton 2003, p.23). From this background the looks and aesthetics of Archigram’s architecture of education were of lesser importance than its ideas about “how people might live” (Barnstone 2006, p.86) and, it follows, how people might learn during their everyday lives. This led to an emphasis, for example, in making use of what already is existence rather than a continual recourse to ‘new build’ – a notion exemplified in the Ideas Circus, which sought to temporarily make the “experience of the environment more intense” (Chalk 1976, p.155) and then move on, having changed minds but not necessarily landscapes.

Thus the distinct lack of permanence surrounding even Archigram’s largest designs recognised neatly the potential for temporary solutions and initiatives in a fluid, just-in-time world. In this way, Archigram conceptualised education and learning as a movable feast – both spatially and temporally. Indeed, David Greene (2006) has later identified the notion of time as key to the idea of the invisible university, not least a concern with how time, space and place is to be best used in the information society. As ever with Archigram these notions of fluidity and impermanence were taken to extremes, leading many of their plans to assume the form of what Hakim Bey later came to term the ‘temporary autonomous zone’. As Bey (1991, p.126) describes:

“Temporary Autonomous Zones live high off the surplus of over-production, they exist with an air of impermanence, of being ready to move, to shape, to shift, to relocate to other planes of reality... a guerrilla operation which liberates an area of land, of time, of imagination, and then dissolves itself”

As such Archigram’s designs for the Plug-In University, Instant Circus and Invisible University can be seen as exemplary educational manifestations of the temporary autonomous zone. Of course the Archigram group were not the only thinkers during the 1960s to take an interest in putting theories of “non-place” into practice (e.g. Webber 1964), but were certainly some of the more successful – especially in relation to their use of technology in achieving these goals.

This focus on temporary rather than permanent provision fed into Archigram’s recognition of the educational value of peripatetic solutions – a notion which has become somewhat discredited and overlooked in contemporary education thought. Indeed, current educational discussion of the peripatetic tends to be in limited terms of people rather than institutions – such as peripatetic electronic teachers roaming around the worldwide web (Squires 1999) or peripatetic distance learners such as student athletes at American universities (Robinson and Mack 2004). The notion of peripatetic education *facilities* – such as mobile libraries - is seen to be a rather outmoded preserve of poorer rural areas in developed countries or else a necessity to deliver basic education in third world or developing societies (Haggis and Goulding 2003, Dyer and Choksi 1998). Yet the notion of flexible peripatetic educational institutions in our developed information societies which have transpired to be rather more sedentary cultures than the rhetoric of the ‘nomadic’ and ‘mobile’ information age suggests, is surely worthy of more sustained attention.

This lack of privileging the physical fed into Archigram's belief in the de-institutionalisation of education and learning wherever possible. Indeed, the group's use of the label of 'university' was often not intended to be taken literally, but rather employed as shorthand for any form of individualised adult education. Similarly the Ideas Circus was an overt celebration of informal and non-formal learning beyond the confines of the formal educational system – promoting learning for its own sake rather than a tangible outcome or qualification. Therefore Archigram were keen advocates of educational forms which were informal, deinstitutionalised and based around a sense of *ad hoc* provision and take-up. In pursuing this belief Archigram's members were clear that the formal educational institution was an inherently inefficient provider of learning, and instead explored ways and means of helping learning and education become part and parcel of the minutiae of life rather than something to be reified and made 'other'. In this sense, the group's thinking advocated indeterminacy and flux, as well as encouraging continuing change and "ambiguity in meaning" and use (Chalk 1976, p.155). Thus Archigram's attempts to physically cater for the *ad hoc* nature of most adult learning highlighted the value of educational solutions which physically bring the provision of education to places and people.

In this sense, Archigram therefore remind us of the potential of technology to disperse education within everyday environments. To date the technology-based dispersal of educational opportunities has primarily taken the form of facilitating shared access to ICT in public sites such as libraries, museums, colleges, schools and purpose built sites. The logic for public provision of ICT access in such sites is well rehearsed. From a demand-side perspective they are seen to offer "safe and accessible environments" in which to access new technologies (Todd and Tedd 2000). From a supply-side perspective such sites offer provider conveniences in terms of the cost effectiveness of utilising existing buildings, resources and staffing, extending their existing public-service ethos and existing alignment with the discourse of public provision for literacy and knowledge (Liff *et al.* 2002). Of course the dispersal of education in such official locations suffers from a lack of cultural and social connection with the people it is intended to reach - although sites such as schools, libraries, colleges and museums may well be *physically* located in communities, they are not always seen to be connected deeply with communities and citizens. Archigram's work suggests a renewed focus on genuine sites of 'community' along with a better 'fit' with patterns of individuals' everyday life. Recent efforts to provide individuals with shared public *resources* rather than providing communities with fixed public sites are an encouraging development in this respect – seeking to increase the relevance of ICT to individuals' day-to-day lives as well as shifting the universal service debate from issues of supply to issues of demand (Greenstein 1999). Archigram take this a step further – pointing to the need to aim for a more genuinely pervasive computing and seeking to create a constantly available education technology system that is embedded into the environment, completely connected, intuitive to use and an integral but unobtrusive part of everyday life (see also Meurant 2007).

Thus for all their talk of individualisation there was a distinct reliance on control as well as choice within Archigram's educational designs or, as Herron and Chalk (1970, p.566) themselves put it, "coercion and capitalisation of what is latently there". Projects such as the Plug-In University and Ideas Circus are imbued with a strong

sense of the centralised supply of education to the masses rather than waiting for individuals to necessarily demand it, thus representing the group's strong belief in the public good of education. Archigram's belief in the social importance of education therefore introduced a structural element to their notion of education and learning rather than being completely reliant on learner agency - acknowledging the practical limitations of human agency when faced with an apparent abundance of choice. Projects such as the Ideas Circus recognised that inertia and inaction can often result from the increased opportunities of the consumer society, and were therefore designed to force opportunity of change onto communities of people who had chosen to remain in provincial, relatively unconnected locations. Indeed, the networking logic of the Ideas Circus sought to foster and even force a sense of community and collective action in an age of fragmented individualisation and consumer-selfishness. Thus Archigram reminds us that left to their own devices, the modern individual may well not get around to engaging with learning or education, regardless of the abundance of opportunity. As such the provision of education requires a more immediate compulsion above and beyond the remote provision of content.

Archigram's designs also touch upon some other aspects of education and technology which are now largely unvoiced or forgotten, not least the value of *old* as well as new technologies. Indeed, there is a distinct and refreshing lack of preciousness about technology within Archigram's proposals. For an avowedly futurist-leaning group the application of outdated technologies of the 1920s and 1930s such as dirigibles and open-air film projectors must have appeared to have been somewhat out of step even in the 1960s. Yet Archigram's designs demonstrated the virtue and economy of utilising technology which was familiar and fit for purpose, not just high-tech and high-spec. They therefore offered a vision of education and technology guided by the idea of technology in a social sense rather than a purely technological sense. Rather than fetishising technology, the group were well aware of the failings of many high-tech solutions and, therefore, were happy to adopt low-tech solutions as and when appropriate. This leads us to a final underlying but often forgotten message in the Archigram project – that of education and technology being playful, colourful and not afraid to display a sense of style and fun. Through-out the Archigram project there is a verve to their imagining of education and learning which is largely absent in most contemporary provision of education and technology. This was nowhere more apparent than in the development of the Ideas Circus as an informal learning festival – an energetic celebration of learning, imparting the energy and excitement “of a rock-and-roll show upon the power of technology” (Betsky 1999, p.63). Lifelong learning therefore ranked alongside partying, eating and sleeping in the Archigram vision as a pleasurable staple of everyday life rather than a worthy and often wearisome addendum.

V - CONCLUSION

In many ways Archigram propose(d) a mode of adult learning in the information age which is at once similar but also completely at odds with the realities of education technology in the early twenty-first century. We would argue that these plans, designs and ideas constitute an insightful and provocative set of alternative values,

motivations and goals which contemporary education technologists and educational-architects would do well to consider. Thus Archigram reminds us that the provision of adult education needs to be loose, *ad hoc* and informal – occurring in a semi-spontaneous and temporary manner. Unlike many other techno-utopianists, the work of all the group's members reminds us that education and learning can be provided with a sense of fun and without a sense of pretentiousness. Technology-based learning can be low-tech, shared and even communal. Learning opportunities need to be naturally dispersed and pervasive rather than sectioned (and sanctified) off in institutions and predicated upon pre-existing learning forms and practices. The provision of education can be mobile and even nomadic, rather than relying on the presumed mobility of individuals. Technology can be used to situate education in the spaces of day-to-day life which may not be considered educational in a formal sense but are nevertheless spaces where people are to be found in abundance. Yet within this de-institutionalised informality and individuality there is still a role for coercive and supportive educational organisation and management from official bodies.

Thus there are a number of important issues for further discussion which we can take from Archigram's work. First and foremost, is the question of whether the education sector is capable of taking the altruistic turn of encouraging and supporting informal learning outside of formal settings and facilitate learning which does not necessarily lead to any further learning or engagement in formal education but merely allows people to learn what they want? Although there will be little or no short-term financial reward in doing so, the deferred benefit of stimulating adults into learning (however informal) are obvious (see Selwyn *et al.* 2006). Yet as Dondi (2003) argues, this would require genuine valorisation and 'no-strings-attached' support of 'bottom-up' community involvement by governments. Community-driven education can be given equal rights, funding and recognition and therefore avoid the situation where "people and groups within a settlement or community are forced into some imposed and standardised 'top-down' model which neglects the huge diversity of communicational cultures between them" (Graham 2002, p.52). Archigram's work also offers some pointers as to the roles that the architectural community may play in this – suggesting that architects must similarly loosen up and think of the *activity* rather than process of learning. Indeed, it has been argued of late that the contemporary education architectural marketplace is "lacking a vision" (Butterfield 1999), based on the underlying assumption that "intellect can be nurtured in sterile places largely devoid of imagination" (Orr 1993, p.226). Indeed, any recourse away from the traditional notion of fixed building-based education has tended to be frowned upon – with mobile and portable solutions derided as "slum architecture" (Tanner 2000, p.310). Whilst some architects and some more radical educationalists may now be talking of 'feral learning' (Bradburne 2006) most are still coming up with decidedly fixed and linear solutions. As such Archigram offer the contemporary architectural and educational communities a potentially inspirational role model, if not in form of function then certainly in terms of spirit and imagination.

Of course, when one begins to consider the feasibility of these alternative scenarios, one soon identifies a number of fundamental clashes with the politics and vested interests of the education and architectural 'establishment'. Indeed, Archigram's wilful failure to consider the organisational elements of their imagined educational forms should be seen as the key impediment to any real change along the lines of

their vision. Just as Archigram's designs for education are often devoid of the buildings so beloved of architects, then their visions of learning are devoid of any concerns over outcomes, targets or measures of effectiveness so beloved of many educationalists. Thus there is no real guiding accountability or responsibility in their plans and no accommodation of the political concerns which so shape and education. As such one of the key implicit messages of the Archigram project is the need for a readjustment of the institutional and organisational aspects of adult education. As hinted as previously, Archigram were certainly were not so utopian as to advocate the dissolution of state. Whilst only obliquely referring to 'city agencies' and whilst advocating the decreased power and control of education establishment they nevertheless recognised the importance of provider interests - albeit provider interests which assume a more benign, background presence. Thus whilst Archigram's designs for airship-borne educational rock-festivals and the like can provide stimulating inspiration, perhaps the underlying significance of their work is more political in nature and, therefore, certainly more difficult to achieve. Archigram could therefore be said to leave all those concerned with education and learning in the early twenty-first century with the challenge of how to provide informal, ostensibly deinstitutionalised education for all in as elegant, playful and challenging way as possible. As such, whilst their designs may not be wholly practicable even fifty years after they were first conceived, the full educational provenance of Archigram's designs may well yet be realised.

VI - REFERENCES

- Archigram (2005) *'Archigram – experimental architecture 1961-1974'* Tokyo, PIE books
- Banham, R. (1966) 'Zoom wave meets architecture' in Sparke, P. (ed.) *'Design by choice'* London, Academy
- Barnstone, D. (2006) 'Review of Sadler "Architecture without architecture' *The Art Book*, 13, 2, pp.56-57
- Betsky, A. (1999) 'Flashback to the future' *Architecture*, 88 4, pp.59-63
- Bey, H. (1991) *'T.A.Z: the Temporary Autonomous Zone, ontological anarchy, poetic terrorism'* New York, Semiotextet
- Blueprint (1994) 'Soundbites: recalling Archigram' *Blueprint*, 105, March, pp.8-9
- Bradburne, J. (2006) 'Learning in the wild: art, science and the future of feral learning' presentation to *'Spaces, Places and Future Learning: Using innovative technology and practice to re-imagine learning spaces'* 1-2 November 2006, Rich Mix, London
- Butterfield, E. (1999) 'The future of the classroom: an interview with William DeJong' *School Construction News*, 2 2, pp. 12-14.
- Chalk, W. (1976) 'Hypertech to bio-tech: the tale of the six wise giants from Archigram' *Architectural Design* 46, 3, pp.154-155
- Chalk, W. (1972) 'Archigram opera' *Architectural Design*, 43 April, pp.242-243
- Cook, P. (1999) *'Archigram'* Princeton Architectural Press
- Crompton, D. (2003) *'A guide to Archigram 1961-1974'* Taipei, Garden City
- Dondi, C. (2003) *'E-learning: me included: how to use e-learning as a tool for social inclusion'* Leonardo da Vinci Programme 2000-2006, European Commission
- Dyer, C. and Choksi, A. (1998) 'Education is like wearing glasses: nomads views of literacy and empowerment' *International Journal of Educational Development*, 18, 5, pp.405-413
- Graham, S. (2002) 'Building urban digital divides? Urban polarisation and information and communication technologies' *Urban Studies*, 39, 1, pp.33-56
- Greene, D. (1969) 'Gardener's Notebook' reprinted in Cook, P. (ed) *'Archigram'* Princeton Architectural Press p. 110
- Greene, D. (1971) 'LAWUN project two' *Architectural Design*, 4/71, p.200-201
- Greene, D. (2001) 'Architecture and the rain: in conversation with Jon Goodbun and David Cunningham' *The Journal of Architecture*, 6, pp.195-200
- Greene, D. (2006) comments to ICA *Cheer-Up 2*, London, Institute for Contemporary Arts October 2006
- Greenstein, S. (1999) 'On the net: on the recent commercialisation of access infrastructure' *Information Impacts*, December 1999 [www.cisp.org/imp/december_99]
- Haggis, S. and Goulding, A. (2003) 'Books to rural users: public library provision for remote communities' *New Library World*, 104, 1186, pp 80-93
- Herron, R. and Cook, R. (1970) 'Instant City in progress' *Architectural Design*, 40, November, pp.566-573
- Jacob, S. (2004) 'Archigram' *Icon*, 13, pp.100-101
- Lachmeyer, H. (2003) 'Archigram: the final avant-garde of an aging modernism?' in Crompton, D. (ed) *'A guide to Archigram 1961-1974'* Taipei, Garden City (pp.473-488)
- Liff, S., Steward, F. and Watts, P. (2002) 'New public places for internet access: networks for practice-based learning and social inclusion' in Woolgar, S. (ed) *'Virtual society? technology, cyberbole, reality'* Oxford, Oxford University Press
- Melhuish, C. (2002) 'Review' *Architects' Journal* 216, 20 November 28, p.8
- Meurant, R. (2007) 'On the Obliquity of Ubiquity' proceedings of *mue 2007 International Conference on Multimedia and Ubiquitous Engineering*, Seoul, pp. 862-867
- Orr, D. (1993) 'Architecture as Pedagogy' *Conservation Biology*, 7, 2, pp. 226-228
- Pawley, M. (1976) 'We shall not bulldoze Westminster Abbey: Archigram and the retreat from technology' *Oppositions*, 7, pp.25-35
- Robinson A. and Mack D. (2004) 'Library service to student athletes: peripatetic distance learners' *Journal of Library and Information Services in Distance Learning*, 1, 2, pp. 5-13
- Sadler S. (2003) 'The Living City Survival Kit: a portrait of the architect as a young man' *Art History* 26, 4, pp.556-575
- Sadler, S. (2005) *'Architecture without architecture'* Cambridge MA, MIT Press
- Selwyn, N., Gorard, S. and Furlong, J. (2006) 'Adults' use of information technology for self-education' *Studies in the Education of Adults*, 38, 2

- Squires, D. (1999) 'Peripatetic electronic teachers in higher education' *Association for Learning Technology Journal*, 7, 3, pp.52-63
- Stungo, N. (2004) 'The greatest buildings never built' *Building*, 22nd October
- Tanner, C. (2000) 'The influence of school architecture on academic achievement' *Journal of Educational Administration*, 38 4, pp. 309-330.
- Todd, M. and Tedd, L. (2000) 'Training courses for ICT as part of lifelong learning in public libraries: experiences with a pilot scheme in Belfast public libraries' *Program* 34, 4, pp.375-383.
- Whiteley, N. (1987) 'Toward a throw-away culture. consumerism, 'style obsolescence' and cultural theory in the 1950s and 1960s' *Oxford Art Journal*, 10, 2, pp. 3-27