

## Using Visual Action Methods in the Design Process

Susan Sherringham, University of Technology Sydney, New South Wales, Australia

Sue Serle, University of New South Wales, New South Wales, Australia

*Abstract: Human centred and co-design approaches to designing often involve working in collaborative, multi-disciplinary contexts. In such situations promoting collegial and open environments and methods of engagement to bring forward and capture the ideas, opinions, perspectives, of the participants for discussion are paramount. Visual action methods provide appropriate ways of promoting 'safe' environments, eliciting information, promoting discussion and facilitating consensus in group situations. These methods provide ways for gaining deeper understandings of the research situation that is appropriate to practice, research and education. There are various methods or tools used within visual action research alongside ways of capturing the data that can take the form of both qualitative and quantitative data. The workshop proposal is for a 60 minute workshop introducing participants to key principles of visual action methods through the enactment of the method via a hypothetical research scenario. The workshop will enact and demonstrate how visual action methods develop rich pictures of a complex situation. The picture allows for disparate interdisciplinary groups to develop shared understandings. The picture holds the context and highlights the issues for discussion and development. This method of research and design engagement is being developed and tested for the purpose of the Australian Learning and Teaching Council Priority Project -- A protocol for developing curriculum led human-centred next generation learning environments in higher education.*

Keywords: Socio-Political Constructions, Social Spatial Constructions, Action Research, Design Thinking, Participatory Research

### Introduction

**D**ESIGNING LEARNING ENVIRONMENTS is no longer a matter of using standard formulas. New technology, curricula and perceptions of learning processes have shifted our understanding of learning environments, ideally toward facilitating a broad range of active learner-centred approaches including collaborative models built around team learning, peer-to-peer learning, and social learning. These new understandings of how people learn and how learning can be supported are changing learning in the 21st century (Bransford, 2000). Ubiquitous technology is revolutionizing how people communicate, access and engage with information altering the experiences and aspirations of learners and expanding when, where and how people engage with learning. As a result of these shifts the design of next generation learning environments represents a complex problem that entails a broad range of stakeholders with diverse needs, priorities and backgrounds. Finding appropriate ways for stakeholder engagement in such complex projects is difficult, but nevertheless essential.

It is this recognition of the difficulties entailed in stakeholder consultation for learning environments that in part, was the catalyst for an Australian Teaching and Learning Council

(ALTC) Priority Project grant in 2008. The project, 'A protocol for developing curriculum-led human-centred next generation learning environments in higher education, is aiming to deliver a protocol, models and tools for the development and evaluation of next generation learning environments' with a particular focus on enabling and facilitating consultation and transformation. The project is using visual action research methodology within a soft systems framework to develop models for enactment during the consultation process and some visual tools to support this process.

Appropriate methods and tools can assist designers to grapple with complex problems and gain deeper insights into the subject of enquiry and the situation at hand (Lawson, 2006). The authors of this paper are design researchers, practitioners and educators and have been working with both soft systems thinking and visual action research methods in all three domains. This paper discusses the relevance of visual action research methods, game play and photo elicitation for design research and practice then outlines three stakeholder engagements where visual action research methods were used in stakeholder consultation. In conclusion, the paper argues that these methods provide meaningful and participatory models for stakeholder consultation which will improve the process of developing and evaluating next generation learning environments.

## **Background**

Design deals with open ended complex problems or systems which represent what design theory has referred to as 'wicked' or 'ill conceived' problems (Rittel & Webber, 1973, Cross, 1984) and what systems theory terms as 'messy problems' (Checkland, 1981). Soft systems methodology (SSM), developed by Checkland (1981, 2006) and Weinberg (1975), can be viewed as a general inquiry process for action research that engages stakeholders in the development of 'rich pictures' through iterative mapping of the problem in context and in abstract or ideal terms. Soft system problems typically have significant social, political or emotional components and rarely have simple or singular solutions. SSM is a form of action research and as such leads to transformative processes and outcomes. The introduction of visual action research methods to the soft systems process enables and supports disparate groups to speak a common language. With the power play of spoken language diminished and shared knowledge and understandings are developed, trust is established (Mieir, 2007, Brandt, 2008).

Design research, education and practice involve activities and iterative processes that enable analysis, understanding, manipulation and change in relation to these complex systems through engagement with stakeholders to understand their needs, desires and scope of projects. Visual language is used in iterative ways throughout the design process to externalize, experiment, explore and communicate ideas. The use of multiple visual action methods brings to any design project a set of appropriate and useful tools and methods for developing a 'rich picture' that provides a deeper understanding of the system, the interplays within it and the relationships between the various actors and actions which in turn informs a designerly way of knowing (Cross, 1982, Lawson, 2006, Checkland, 1981, 2006).

In the case of design for learning environments the wicked problems are truly wicked. The design of next generation learning environments involves a far more complex process than the design of traditional learning spaces due to the number of variables, the rate of change in the sector and in technology, and the needs and expectations of new generations

of students. Coupled with this is the diversity and stratification of the stakeholder group and the design teams involved.

The use of visual action research within a soft systems framework allows for a playful, inclusive, designerly approach to these truly wicked problems. Visual action methods using photo elicitation and concepts of game play as particular genres for developing design dialogue provide for the suspensions of ordinary laws or relations (Brandt, 2008, Harper, 2002, Latham, 2003) and promote a levelling of the socio-political relations present in the stakeholder group (Brandt, 2008, Meier, 2007). The methods provide a way of envisioning possible alternate futures unconstrained by the 'real world' (Brandt, 2008). Visual action research methods provide a way of moving from the general to the particular through iterative cycles involving stakeholder participation. Through this form of enquiry, insights and information are brought forth through 'play', visual narrative, collaborative dialogue, experimentation, testing, reflection and evaluation to develop shared understandings, visions and improved outcomes (Archer, 1991, Checkland, 1981, Cross, 1982, Harper, 2002, Brandt, 2008).

### Visual Action Methods

Action research forms part of what is known as interactive social science research. Action research is user oriented, democratic and participatory and aims to empower participants, create shared understandings, insights and knowledge, improve situations through transformation (action) and through these processes create communities of practice (Todhunter, 2001).



Fig. 1: Visual Action Research in Action: Workshop Case Study 2

Visual action methods involve the addition of images, diagrams and drawings to the action research process, encompassing for example, research methods such as photo-elicitation, photo-voice, photo journals and concept or relational mapping (Corti, 1993, Banks, 1995, Harper, 2002, Hurworth, 2003, Meier, 2007). As in all action research, they involve collaborative processes of visualising the 'problem situation' that helps to foster a learning community where participants communicate through a visual language, allowing them to appreciate and contribute to an understanding of the complex system / problem situation and through this process identify desirable change, needs and actions. The method achieves validity through a cyclical procedure of critique, challenge, reassessment and refinement in dialectic of multiple information sources and perspectives (Dick & Swepson, 1994).

Visual action research expands the possibilities of conventional empirical research in two ways. Firstly it connects immediately with feelings, memories and associations (Harper, 2002) and secondly it can be viewed as a type of social performance allowing the research to be more experimental, playful and iterative (Latham, 2003). In agreement with a more flexible view of how design briefs may be developed and how design research might produce

and interpret evidence or outcomes, consultation methods take on a more designerly approach and open up propositional opportunities and moments of discovery for understanding how people, individually and jointly, engage with each other and the world around them (Latham, 2003, Archer, 1991). In the case of developing design briefs for learning environments, visual action research methods offer an innovative framework for engaging with diverse stakeholder groups.

It is not uncommon for stakeholder groups to be diverse in their backgrounds and socially and politically stratified. In a situation where participants have different attitudes, levels of power, and status, communication through conversation limits contribution and risks misunderstandings (Lawson, 2006, Meier, 2007). This disparity is equally applicable amongst user groups and stakeholders, as it is amongst transdisciplinary design teams (Meier, 2007). Visual action methods, using simple images to represent complex ideas, can sidestep the problematics of diverse stakeholder groups and gain social strength through shared experience and co generated insights to progress design directions and lead to the co creation and co authorship of projects (Shankarin, 2009, Banks, 1995, 2001). This human centred approach is particularly important when stakeholder groups are stratified and socio-political tensions are present. This is one of the many benefits that visual action research affords. In order to understand why this works, a short overview of photo elicitation and game play is useful.

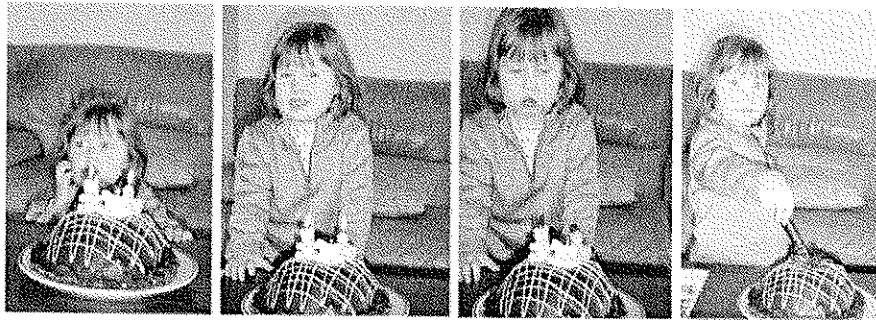


Fig. 2: Images can be used to Create a Story, over Time or to Read in Layers of Complexity or Detail

*'The thrill found in a photograph comes from the onrush of memory'*  
John Berger 1992

### **Photo Elicitation**

The term photo elicitation was first used in the mid 1950's, emerging from photo anthropology in the work of photographer and researcher John Collier (Harper, 2002). Collier was investigating themes that were difficult to explore amongst ethnically different groups. With the introduction of photographs to the interview setting, researchers found that the 'photos sharpened the informants' memory and reduced areas of misunderstanding,' also leading to 'longer and more comprehensive interviews' (Harper, 2002:14 citing Collier). This technique is seen to 'prod latent memory', 'release emotional statements' and is able to elicit not only 'more information,' but also a different kind of information that reveals deeper insights (Harper, 2002:14).

Photo elicitation can use any form of image, including film, to trigger memory of experiences, emotions, thoughts, understandings or to provoke ‘what if?’ propositions from the participant perspective (Harper, 2002, Brandt, 2008). The images can range from those taken from the field of enquiry, to abstract or symbolic views. Photo elicitation can be used in numerous research methods such as interviews, focus groups or workshops and journals (Banks, 1995, Latham, 1993, Harper, 2002, Hurworth, 2003).

A useful history and mapping of the field can be found in Harper’s article ‘Talking about pictures’ (2002). Harper suggests that ‘photo elicitation be regarded as a postmodern dialogue based on the authority of the subject’ (2002:15). This framing of photo elicitation situates it as appropriate to the intentions of participatory design practice and human centred design.

### ***Game Play***

The use of game play in design is not new and dates back to the 1970’s; for example in the work of Cedric Green. In response to the problem of co-operation between architects or more broadly between design team members, Green adopted Connect, a symbols game designed by Ken Garland. Green used the game, bending the rules, to create a situation where a team had to co-operate in order to be successful. Green went on to develop a building design game called Gambit, in recognition of the value of the game for team work, but also the end product of the game which, like the playing of the game, produced fascinating results. Through observation, Green recognised that game playing as a technique, provides an interesting study of team dynamics. It demonstrated that teams who deal with tension and work collaboratively toward shared visions, ‘outplay’ other teams, even when these are made up of ‘highly talented designers’ (Lawson, 2006:239-240).

In practice, international strategic design firms such as DEGW use visual cue cards or as they call them ‘culture cards’ to enable stakeholder consultation in envisioning sessions or past, present, future workshops, which bear great resemblance to the concepts of photo elicitation and game play.

More recently, through the work of Brandt et al, the concept or genre of game play has been developed as a participatory design method ‘for the formatting of design dialogues’ (Brandt et al, 2008:51). Game play is seen as a format and means for collaboration as well as ‘a vehicle for producing artifacts as reification of the process’ (Brandt, 2008: 57). Brandt has developed a number of games, in particular ‘board games’ for design teams and user/stakeholders to engage in meaningful dialogue using field images, words and graphic spatial representations, to construct stories or future worlds. The games are played using materials and rules that enlist participants to engage freely in infinite play, whilst allowing ‘plasticity and ambiguity’ of infinite play and in so doing, participants should be engaged in ways that are both relevant and challenging (Brandt, 2008, Carse, 1986). Metaphor games and play, particularly when incorporating images, take participants out of their normal world to enact future possibilities (Brandt et al, 2008, Latham, 1993).

### ***The Tool***

The Visual Action Research Method developed for the ALTC project involved the development of a number of decks of Visual Cue Cards to use as a tool for eliciting information,

insights and responses from stakeholders in various forms of engagement including interviews, focus groups and workshops.

The tool is one of several being developed for the project and incorporates images that range from the abstract to the familiar. The Visual Cue Card Tool is now being developed through workshops and focus groups through iterative cycles of testing and evaluation. The images that have been chosen for the Visual Cue Card tool have been selected to elicit ideas and conversation around curriculum, graduate attributes, learning activities, environments, aesthetics and technology.

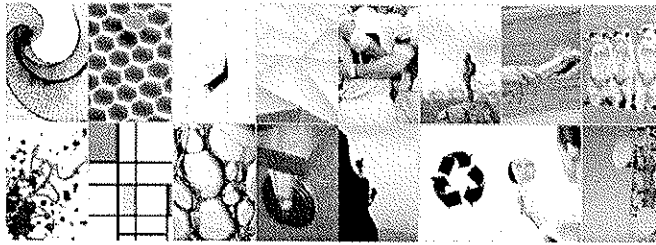


Fig. 3: Examples of Images used for Testing of the Visual Cue Card Tool

The images are chosen to evoke concepts, scenarios, stories, emotional responses or symbolic meanings around current and next generation learning for example; settings, aesthetics, qualities, textures, symbols, ways of interacting, graduate attributes, curriculum. The intention is to provoke situational questions to which the cards appear not to provide an 'easy' or obvious answer. The selections therefore are contested so it is through the discussion, negotiation and collaboration of the group members in reaching agreement that knowledge is shared, trust is established, learning is facilitated and meaningful insights are brought forth. The cards function is to evoke and elicit ideas, to facilitate the drawing of rich pictures and capture consensus.

### ***The Model***

The workshop model provides a framework for participatory stakeholder engagement through the use of text and images to provide a dual commentary (Banks, 1995) and form a space for both finite and infinite play. The general framework for the model is as follows:

- An introductory reorienting exercise is played out to open the participants up to alternatives.
- Participants engage freely in a game like collaborative activity preferably in a setting outside of their daily contexts.
- The participants are broken into groups ideally of four to 6 people.
- The groups are presented with a probe, scenarios or questions that they must respond to in a given period of time.
- Participant use the cue card tool which has often been 'curated' to elicit ideas around existing and/ or future possibilities.
- A typical workshop session will involve two to three sequential probes, scenarios or questions, each building on the next to move toward an understanding or a more detailed representation of stakeholders views and/or needs.

- For each probe, scenario or question, the participants may select a predetermined and limited number of images to represent their responses; the number of cards is always fewer than the number of people in the group to force negotiation.
- The selection of images requires discussion, eliciting participants' various perspectives.
- Alongside the selected images, the group agrees to the keywords these images represent.
- The selections are presented group by group to each other.
- At the end of play, participants have produced representations, visual and written, that represent both the process and proposition.
- The process and the results are captured using photography, film and digital recording for analysis and evaluation.

The patterns formed from the image cards by the different participants are closely analogous to the "rich pictures" developed by Checkland (1981, 2006). They capture the individual's multiple roles and attitudes in relation to the design problem. As with "rich pictures", the patterns are highly idiosyncratic, and yet allow the ready perception of shared territory. Thus the group comes together in the analysis of the complex situation, ironically by proceeding every which way.

The benefits of stakeholder engagement through visual action research are evidenced in the following case studies.

### **Case Studies**

Three case studies have been selected to illustrate the use and benefit of visual action methods in the design process. They represent both practice and research workshops undertaken during the period March 2009 to March 2010.

#### ***Case Study 1: Student Focus Group***

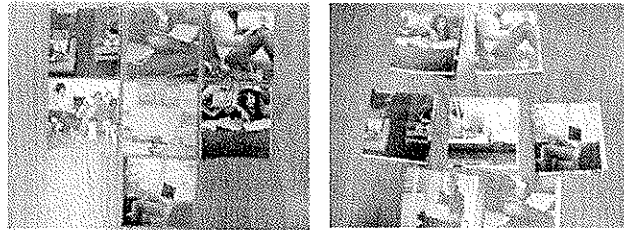
##### **Overview**

The aim of this focus group was to draw forth the perception and needs of students in relation to their university campus. The visual cue card tool was used to elicit responses and open up discussion in a one hour focus group session. Students were divided into two groups. The facilitator introduced the project and the method to orient the students to the purpose and process for the session.

Students were asked a series of 5 questions and for each question they were allowed to select a maximum of 9 cards and a minimum of 4. A curated deck of visual cue cards was presented to them at the beginning of each question session. Students engaged openly in conversation regarding the questions and selected the cue cards that best represented their response to the questions. The cards were then arranged and photographed as a record of the images selected. The discussion was recorded to gather further insights.

##### **Questions**

The students were asked a range of questions that relating to their preferred learning activities, spaces to support these activities, ways of engaging with other, interpersonal relations, services and support facilities and environmental quality.



### **Findings**

The unrelated groups of students selected surprisingly similar cards. In their dialogue the students expressed openly their satisfaction and dissatisfaction with aspects of the campus, their appreciation of the outdoor settings and location of the campus, and a sense of identity associated with the campus and its history. The students appreciated the campus as a learning space.

### **Evaluation and Insights**

Overall the focus group session and the method used worked well to open up student discussion and elicit information and insights. Due to the level of detailed discussion taping the conversation was essential and in future videoing was employed. The students found the process intense but all agreed that the images allowed them to 'start talking without hesitating' and 'cover things in different ways'.

For each of the five questions the card selection of both groups was almost identical. Typically

Group 1's selection of 9 images would be identical to Group 2's with one card difference or Group 2's selection of less than 5-8 images were subsets of Group 1's selection. This was the case for responses using concrete images or pictograms from the curated decks, however greater variation occurred when more abstract images were introduced.

The more concrete images resulted in more conservative responses, but allowed participants to articulate many issues that were concerning them. Moving from the concrete to the abstract images resulted in more adventurous thinking and supported openness for students to consider different possibilities.

Following this workshop the deck was developed to incorporate more abstract and conceptual images and the number of cards allowed for selection was reduced, to encourage deeper discussion and a more collaborative engagement.

### ***Case Study 2: Envisioning Learning in Engineering Workshop***

#### **Overview**

The aim of this two hour workshop was to engage a broad stakeholder audience in an active session framed around spaces for learning and learning in engineering using the visual action method and the revised visual cue card tool alongside a 'culture card' deck from DEG. Participants self selected where they sat to determine the groups. Generally groups consisted



of unrelated participants of 4 to six members with 24 participants in total. The facilitators gave a presentation on the direction in learning and learning spaces in engineering, followed by a short introduction to the project and the method to orient groups to the rules and how to 'play'.

The groups were asked three questions and for each question they were allowed to select a maximum of 3 cards from a curated deck of 20. A new deck of visual cue cards was presented to them at the beginning of each question. Participants engaged openly in dynamic debate regarding the question/s and selection of cue cards. The conversation was animated and fluid and led to negotiated positions that best represented the group response to the question/s. The cards were arranged with participants recording the key concepts associated with the images and then as dual group dialogue, the responses were photographed.

### Questions

The three questions posed to the groups were related to key factors in developing effective learning environments, current and future learning activities in the engineering curriculum and what learning environments might be like to support these factors and activities.

### Findings

Participants developed rich conceptual pictures around each of the three questions. For the development of effective learning environments the key concepts of trust, risk taking, creativity, openness, fun, collaboration and learning as a journey were proposed. For the current and future scenario participants realised and acknowledged that higher education including engineering is in a transitional stage and places for learning are moving away from passive didactic spaces to active self directed spaces where learning is collaborative, fun, social and takes on many forms of engagement.



### Evaluation and Insights

From a Project team perspective, the results were very positive. The level of engagement and enthusiasm displayed by the participants affirmed the method for promoting open discussion. Generally participants were keen to know more about the method and the tool as they could see applications for it within their institution, their work and their teaching. The participants saw the process as playful and participatory leading to open, insightful dialogue and reducing the awkwardness often found when interacting with virtual strangers in unfamiliar situations.

Running the workshop in a collaborative authentic learning environment reinforced by the method used, actively engaged people visually with their surroundings and revealed an appreciation of the space. The perceived success of the workshop from the perspective of the convenors was that visual cue cards were an effective communication tool that were simple to use and engaged the group in energetic debate. It was befitting in an innovative learning space to use an innovative learning activity to brief designers about curriculum directions.



### ***Case Study 3 – Conference Workshop***

#### **Overview**

The aim of this two hour long workshop was to test the visual cue card tool and workshop model in a group of unrelated participants of varying backgrounds within an international context. To this end a workshop was facilitated at a conference. The questions were refined to be more generalised due to the nature of the audience. The visual cue card decks were assessed for their relevance to each of the questions and curated accordingly. Where there were gaps in the themes, the decks were supplemented with DEGW ‘Culture Cards’.

Participants determined their own groups for the workshops. Generally groups consisted of unrelated participants of 8 to 10 member’s, fluctuating throughout the workshop with 22 participants in total. The facilitators gave a presentation on the methodology behind the tool and the workshop model to orient the groups to the rules of ‘play’.

The groups were asked three questions and they were allowed to select a maximum of 3 cards from a curated deck of 20 for each question. A new deck of visual cue cards was presented at the beginning of each question. Participants engaged openly in dynamic debate regarding the question/s and selection of cue cards. The conversation was rigorous and led to negotiated positions that best represented the group response to the question/s. During the course of the workshop participants were encouraged to break the rules and to use blank cards to draw their own images. The cards were then arranged with participants recording the key concepts associated with the images selected and then as dual dialogue the responses were photographed.

#### **Questions**

In order to further evaluate the model used in case study three the general framework for the workshop remained the same with three questions asked following a similar line of enquiry to those used in case study two. In this instance participants were asked around key charac-

teristics and capabilities for students to develop through design curricula, what learning approaches and learning environments support these.



### **Findings**

The groups saw collaboration, tenacity, observation, curiosity, flexibility and the ability to deal with ambiguity, take risks while being socially responsible as the key attributes. The learning approaches seen as supporting these attributes were facilitation, exploration, discovery, practice(ing), experiential learning, networks, collaboration, specialization, and argument (expressing and defending your perspective). Environments that might support these activities were seen to involve industry and community and be non-demanding, free, open, buzzy, contemplative, self-organising, modular, mobile, neutral, alive and able to grow, playful, expressive, restful, connected to nature, bright and supportive of work, with the ability to express 'memory' (of previous learning activities and learners in the space).

### **Evaluation and Insights**

Generally participants engaged in dialogue and debate around the cards and the questions being posed. They were comfortable to discuss their ideas and generally comfortable to contest the ideas of others.

The group's size of 10 per table in this workshop was too large with the intended group size being a maximum of six however this was difficult to control due to the configuration of the room and other attendees drifting in during the course of events.

From a project team perspective, the results were very positive. The level of engagement and enthusiasm displayed by the participants was again affirming of the method. The two groups operated in very different ways with one group highly divergent and the other highly convergent. Despite being encouraged to break the rules only one participant from the divergent group took up this opportunity. A survey of participants at the end of the workshop returned consistently positive results from participants who were both familiar and unfamiliar with the concepts behind the tool and the workshop.

The workshops and focus group findings are currently undergoing a deeper and more thorough analysis that will inform next steps. The workshops and tool generally have received positive evaluation through interviews, surveys, participant observation and reflection. The model and the tool enact visual action research as a useful method for undertaking stakeholder consultation to develop conceptual models and gain insights into user and stakeholder perspectives and priorities.

### **Stakeholder Consultation and Visual Action Methods**

There are many ways of approaching the development of design briefs and the briefing process however; generally the development occurs through conversation as a shared experience (Lawson, 2006). It is not uncommon for the stakeholders groups to be diverse in their backgrounds and socially and politically stratified. In a situation where participants have different backgrounds and different attitudes, communication through conversation limits contribution and risks misunderstandings (Meier, 2007). This situation is equally applicable amongst user groups as it is amongst transdisciplinary design teams (Meier, 2007). Visual action methods using simple images to represent complex design ideas can sidestep these risks and gain social strength through shared experience and co generated insights to progress design directions and lead to the participatory design, co creation and co authorship of projects.

### **Conclusion**

Soft Systems Methodology provides a framework within which the iterative process of action research allows for flexible, responsive and emergent engagement between stakeholders and researchers in the field (Shankaran, 2009) in an iterative process. Using visual tools to enhance the action research process aligns well with the design process through the use of visual language and the visual manifestation of outcomes and propositions. Using visual action research as a method for developing design dialogue in game like frameworks provides for the suspensions of ordinary laws or relations levelling stakeholder groups in socio-political contexts. The visual action research methods employed take participants out of their normal world to enact future possibilities through collaborative engagements where knowledge is shared and ideas are co created.

The three case studies evidence the relevance of visual action research as a method for engaging with disparate stakeholder groups, to build repour and trust, to elicit ideas and promote debate and to generate shared understandings. The research gains validity when conducted in an action research framework, as insights are gained through cycles of critical reflection and action (by researchers and participants in the field). As a research project in process there are many cycles yet to be completed, however, new insights are being gained iteratively. These methods allow for playful, experimental engagements leading to emergent or propositional findings that provide new ways of understanding how people inhabit and interact with the world and with each other. They support and enhance designerly research and designerly ways of knowing.

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### **About the Authors**

#### *Susan Sherringham*

Susan Sherringham (BA (Hons)), is Senior Lecturer and Course Director of Interior Design in the Faculty of Design Architecture and Building at the University of Technology Sydney (UTS). She is Chair of the Teaching and Learning Spaces Improvement Working Party at UTS. Susan has over 20 years of industry experience as a designer, as a Director of a multidisciplinary design practice and in her own multidisciplinary design practice, primarily designing for the commercial sector including research and development projects. Her current post graduate research focuses on adaptive expertise, systems thinking, organisational learning and life-long learning in the design industry; an aspect of which is conceptualising the workplace as a learning environment. Susan is Project Leader on an Australian Learning and teaching Council Priority Project - A protocol for developing curriculum-led human-centred learning environments in higher education. Susan is also a Director and Treasurer of the Interior Design/Interior Architecture Educators Association.

#### *Sue Serle*

Sue Serle, Bachelor of Arts (Interior Design) RMIT, Masters Design & Planning University of Melbourne, is a lecturer in interior architecture in the Faculty of the Built Environment at The University of New South Wales. Susan is an Accredited Member of the Design Institute of Australia and has over 20 years of industry experience as a designer. Her research interests focus on visual languages, interdisciplinary and workplace design in office, health, and education particularly new learning environments. Teaching is a major part of her work and contributing to an environmentally sustainable future is a key goal.

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