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Designing performativity for mixed reality installations

Abstract

This article takes up the concept of performativity prevalent in the humanities and applies it to the design of installation arts in mixed reality mode. Based on the design, development and public access to two specific works, the concept is related to a form of research by design. We argue that the concept of performativity may be further usefully employed in investigations (design and research, artistic and public) into digital arts where complex intersections between concepts, technologies, dramaturgy, media and participant actions are in flux and together constitute the emergence and experience of a work. Theories of performativity are related to these two works in an argument that further suggests there is room in research by design to also include 'performative design'. The article is the result of a wide-ranging interdisciplinary collaboration and aims to convey some sense of that in its reporting style, content and analysis.

Keywords: installation art, performativity, research by design, practice-based research, mixed reality, performative design

Contexts

Art, design, practice & performativity

In one way or another, our daily lives are shaped, filtered and filigreed with digital tools and technologies. These are often lodged in our material practices of information search and retrieval, and they are connected to a variety of activities in work and learning, commerce and play. When we think of digital environments we commonly think of desktop interfaces, game worlds or seamless contact via mobile phones. In each of these domains, as users we have direct, active relationships to screen based spaces and the media within them. Alongside such spaces, however, are those realised in and as electronic artworks. Digital art pieces often play with and seek to fissure and deconstruct interface conventions along with our expectations and comfort as participants in which our embodied interaction is central. In such artworks, the aesthetic is often relational. Their poetics is centred on emergence rather than fixity. Self-reflexive qualities often become part of their materiality. They entail performative contributions from visitors as well as ones enacted by the technologies through which they are mediated.

Such digital artworks implicate us in the interplay of technologies and the texturing of communication that is made possible by design for participation and through engaged performativity. Many contemporary installation type spaces use a mix of media, static and dynamic, linear, nonlinear and generative. They may be characterized by a type of participative play that involves us as active and implicitly collaborative co-actors and not merely as static, spectatorial audiences. Our embodied engagement is also realised in shifting performativity relations between the immediate context and the distributed character of digitally mediated communication.



Figures 1 & 2: (Above) *Dislocation* – on site in the construction of a multi-layered space for audience engagement. (Below) *Unreal Installation* – practical work in connecting media and the set's actor testing the mediated system.

Rarely do we encounter design-oriented analyses of embodied interaction such as is characteristic of our engagement with the mix of physical location and the unfolding of live and stored digital mediations. It is rare to find critical accounts of the design considerations in realizing mixed reality (MR) art works and their combinatorial practices of creative construction together with the design based shaping of potential for participant expression and

affect. These design perspectives may be seen in respect to the concept of the performative. Broadly, the performative refers to acts of ‘speaking’ or utterances. These utterances constitute not just events and actions. They also are to do with also effects that are located in their enactment in and of themselves, materially, discursively and affectively (Bolt 2008). In the context of MR arts, such acts and effects may be cast in different and varying communicative modes, such as movement or vision, and not only speech.

Designing for performativity refers to shaping of affordances and potentials for action by participants within constructed environments. In MR arts, the results and effects of this design are realized by participants’ engaged expression. Designing for performativity therefore has to prepare potential actions, promote ones that motivate engagement and leave space for participants’ own generation of activity. This is a complex interdisciplinary design task. It demands a mix of the directed and the open-ended, maintaining some measure of artistic identity while at the same time encouraging gallery goers to shift between offered perspectives and the generation of their own exploratory processes. It is the sum and difference of these through which the choreography of the live and mediated, immediate and remote, current and given may be realized in MR works.

Outline

This article is an essayistic ‘disclosure of design’ by a mix of artists, designers and researchers of mixed reality installation arts. It refers to two distinct works that shape experimental spaces for designing for performativity and embodied engagement. The article is co-authored by two researchers who were not part of the internal art production process. Such a disclosure has two interconnected parts. On the one hand, the concept of performativity helps us understand and account for the design demands and processes in developing MR art installations. On the other hand, in the practices of designing MR installations informs and moulds our notions of performativity and its application within practice-based research.

We do this with reference to theoretical framings of practice-based inquiry and in so doing connect to design research. To address these issues, we go behind the screens and surfaces of two mixed reality installation works (see Figures 1 & 2) and engage in a multi-authored meta-reflection. This is carried out with reference to Schön’s notions of both reflection in action and reflection on action (Schön 1983, 1987) in an experimental digital arts context. Here we heed the advice given by Koskinen (2009: 16) when he observes that ”Practice needs to be broken down and understood as experimental work, which typically has a conceptual basis, yet is ultimately observable and reportable.”

How then might practice-based inquiry expose its inner processes and developmental character without simply engaging in navel gazing? At the same time, how do we recognize and critically interrogate our various art, design and research perspectives and practices and relate these to one another to better understand the experimental, conceptual and emergent character of MR installation arts?

The two works have already been constructed and exhibited. Analytically, however, they remain to be more fully articulated as instances of conceptual and technological design and art making. We relate the ‘inside’ of the design and development process to the core concept of performativity. We draw together several theories on performativity and extend these to MR works. We take up the challenge outlined by Hasseman (2006) and elaborated by Bolt (2008) to investigate what it means to research in a performative paradigm, one that relates art with design and practice with analysis, that is part of a wider collaborative art and research project.¹

Two works

Dislocation

Dislocation is a gallery based installation in which visual and auditory displays combined with audience locational data create the impression that realistic virtual characters inhabit the same physical space as the audience.²



Figure 3: *Dislocation*: Installation view with audience Interaction, F.A.C.T, U.K. 2006

Four screens are inset in the front of a room measuring 8x4 metres. Centred at the rear of the room is a camera that transmits a live video feed of the room to the screens. Additionally, eight speakers surround the room to provide spatial audio content. When looking into the screens, the audience members see themselves from the camera perspective at the rear (see Figure 3). Depending on the location of the audience members, pre-recorded video avatars are composited live within the mediated video space, giving the impression that these characters are co-inhabiting the physical exhibition space. The MR experience is outlined by Muller (2005) when she writes:

It takes a moment to realise that what you can see is your own back, and those of your neighbours peering at the adjacent monitors. The screen flickers slightly, as if there is a minor disruption in transmission, and someone else enters the gallery, nearer to the camera, talking on a mobile phone. The sense of their presence behind you is spine-tinglingly palpable, as is the illicit feeling that you are eavesdropping on their conversation.

Within this framework, approximately 120 different scenarios are presented ranging from banal everyday occurrences, such as a gallery-goer talking on a mobile phone, to extreme encounters, such as an attack dog being led into the space. These scenarios are presented randomly so that audience members can remain in the installation space for an indefinite period and experience not one but multiple MR encounters.

Spatialised audio complements the visual MR space. As a virtual character can be seen walking across the room behind the audience, their footsteps shift across the room in unison. The boundaries between physical reality and virtuality blur further as the installation caters for multiple audience members simultaneously. Due to this co-habitation, the real and virtual begin to flip whereby the audience on occasion, after viewing several virtual characters inhabiting the space, subsequently perceive a real audience member entering the installation as yet another virtual character in what Timmins and Lombard (2005) describe as inverse presence, that of the illusion of reality appearing mediated.

Unreality Installation

The motivation behind the *Unreality Installation* was to experiment with the notion and realisation of mimetic desire, inspired by the work of René Girard (e.g. 1994), within a MR work.³ In terms of the performative, the intention was to offer audiences an experience of sensing and wanting mimesis for themselves within a single site installation. This would be an environment that would make the isomorphism of wanted and given desire explicit, yet play with expectations in the manner of their materialisation. Designing for performative engagement involved different competencies and creative talents, spanning areas as choreography, acting, set and costume design, video/filmmaking and programming.

The process and materiality of the installation are described in Andersson et al. (2008) and on the *Performing Pictures* website as follows:

Prior to the installation, an office was built in Hammarby Artport, with a desk, a lamp, a chair and a computer screen on the desk. In collaboration with the choreographer, the actor Simon Norrthon took over the space with the thought that a doppelgänger existed in a completely identical yet mirrored office on the other side of the wall. This act in the office was recorded in advance. A divided screen was mounted outside the office. The previous recording, now the mirrored-image film which played in a loop, was shown on the right-hand side. That which was taking place in realtime in the real office space was shown on the left-hand side. On opening night Simon Norrthon went into the office to act opposite his previously recorded self. These two versions of Simon were projected on the screen outside the office as well as on the computer screen inside. Simon's act in realtime was displayed with a 3-second delay.



Figure 4: Not quite mirror images. Two instances of an actor on the inside of *Unreality Installation* (one live, one pre-recorded).

For audiences, this installation offered several linked layers for performative engagement. In exploring the Other in *Unreal Installation*, relations between the dramatic and performative

were critical. *Unreal Installation* belongs to the field of dramatic arts extended to the performing arts. The 'play' was crafted to create a vivid character, a person on the screen with whom the viewer-performer would sympathise or identify. Observationally, viewing was possible for both the recorded material and that of a live participant on one side of the mirrored office spaces, and this could be extended to the combined screened videos (see Figure 4). Participants could also take an active role inside the installation work in making movements of their own and see these patterned externally in the combined sequences; such patternings could also be taken up as material for new entries into the space. Audiences could thus see and generate these relations of immediacy and record, as well as their interplay.

Practice-based inquiry and the creative arts

Changing relations between practice and reflection

Research by design has been addressed in the creative arts largely through writings on practice-based inquiry (e.g. Sullivan 2005). For artists moving into critical reflections of their practice, this has been a major development in academic discourse conventions and expectations (Biggs 2000, 2006a). This has been particularly the case with respected PhD programmes that demand critical analysis as well as art production (e.g. Scrivener & Chapman 2004). The issue at heart here has been how to convey insights and knowledge that are located in practices of making art and to present, represent and critique them in scholarly discourse (Biggs 2006b).⁴ With the advent of digital technologies, this is extended to modes of online research mediation (see this issue Arnall & Martinussen 2010).

Biggs and Büchler (2007) have argued that rigour is needed in practice-based research in order for it to be able to move above and beyond the level of description and presentation to one of well-honed reasoning and analysis that accentuates the ways that knowledge is gleaned from practice and in turn may inform theory (see also Scrivener 2009, Rust 2007). Davenport and Mazalek (2004: 30) provide an important metaview of the relationships of different modes and processes of practice-based inquiry in the techno-arts, the cycle of imagination, implementation, narrative building and analysis that sometimes produces art as well as insight.

In addition to specific practice-oriented doctoral programmes in art, architecture and design and related debates on relations between artistic production and analytical research reflection, a number of key academic publications have also been initiated to make more apparent relations between theory and practice, various forms of knowledge, and the rhetoric of research publication (e.g. Morrison et al. 2010b).⁵ Drawing on a number of projects and works, in consultation with their makers as researchers, Rust (2007: online) notes that:

Those who wish to be regarded as researchers - as well as being artists or photographers or designers - must 'own' their research in several important ways. They must declare the subject of their inquiry and their motivation for investigating it. They must demonstrate that they have a good understanding of the context for the work and what has gone before. They must have both methods and methodology and they must set all these things out in ways that the rest of us can recognise and understand, although we need not be prescriptive about the actual means of doing that.

Given these developments in a more critical and contextually framed intersection between art making and reflection on it, and the background of a 'performative turn' in poststructuralist inquiry, Haseman (2006) has gone so far as to argue that we need to conceptualise a performative paradigm suited to creative arts research. This is distinct from qualitative and quantitative paradigms that predominate in research. We discuss this argument and responses to it further below, but first it is to the mixed reality status of much installation arts today that we now turn.

Complex relations in MR installations

Many contemporary installation art pieces are characterised by the mix of digital and physical materials. This mixed reality character is further given form through the activities of participants, once static audiences, now moving through the works themselves. The complex of materiality, media and movement, the performative enactment of a work may occur by way of motivated action and random generation. It is precisely this interplay that may be understood with the concept of performativity.

From earlier static sculptural qualities (Bishop 2005) installation artworks have increasingly moved towards deconstructing their own means of mediation and temporal and spatial arrangement, such as experimenting with new materials (Suderburg 2000, De Oliveira 2004, Coulter-Smith 2006, Rowe & Morrison 2009). One of the major ontological shifts in these works has been a move from control and authorial power invested in the work by its creators to the dispersal and divestment of control and authorship to the audience participant as agent.

Expanded notions of design

This perspective is in part a complement to critical design as applied to arts inspired creation. Critical design is often technologically framed (Dunne & Raby 2005) specifically to interrogate and expose our assumptions in both making and encountering the techno-arts. It challenges our engagement and action, conceptually and mediational, where ambiguity and openness also are important in forging a fit between humans and technology. Incorporating such criticality is important in the design of MR arts with its mix of the 'real' and the 'virtual'.

MR works often ask participants in both the design process and 'exhibition' to engage in a reflexive mode of speculation themselves.⁶ Such speculation, stretching both theory and practice in the context of MR arts such needs to also incorporate designing for enactment. This is not merely a matter of referring to existing approaches to participatory design with its important focus on user centred involvement, nor is it to argue for an uncritical immersive affect in embodied interaction (Hansen 2004). Affect is important: we see, feel, and shift in many MR works and they force and invite us to enact these states and senses through our bodies and not only through a visual or scopic distance. Yet affect may also be understood as more than plain sensation in works that are to do with 'making' MR art.

Rather than talk of embodied interaction in which the split between mind and body is banished (Dourish 2001), we prefer to speak of engaged interaction. This is interaction in which participants in digital events and environments are motivated by their communicative purposes and possibilities. These too are an interplay between the given and emerging qualities of the artefacts themselves. A variety of sensorial and perceptual modes of making meaning are entailed in engaged interaction. This approach acknowledges the swing towards experience design (McCarthy & Wright 2004) while at the same time acknowledging research in tangible computing. It is also very much a matter of our own exploratory, playful and reflective engagement with what is given and emerges through our participation.

This has extended to our own practice-based research inquiry in the mode framed by Davenport and Mazalek above. However, in the design-based projects, designing for performative enactment was central. Performative design, we argue, incorporates the conceptualisation and implementation of resources (tools, senses, signs, environments, experiences) that are geared towards visitors' active participation in realising 'utterances' that are offered, prompted or posed for their uptake, completion or alteration. As is mentioned below, this refers the notion of the performative as an act of doing (Austin 1962), but it also needs to be extended to encompass other views on performance and performativity. In the same way that performative language actions create in themselves, performative software use

creates the content of Web 2.0 applications in what are called social software environments. We suggest that the MR installations we describe are a performative system that creates itself in a form of ‘social hardware’.

From performance to performativity

On performativity, discourse as social action

The concept of performativity has yet to be widely applied in design research. However, it already has a considerable history in the humanities, in linguistics, cultural studies, literary analysis and performance studies. For example, for Turner (1982) performativity is connected to changing modes of understanding human behaviour and its patternings in anthropological and ethnographic inquiry (see also Morrison et al. 2010c).

The performative has origins in the philosophy of language that accounts for how words are used to enact specific events and situated meanings. Austin (1962) advanced a theory of speech acts through which discourse is realised. A performative utterance occurs when saying something is doing that thing. Classical examples include making a promise, but may also perhaps be extended to include speculating. The social and cultural context of such an act is important for its satisfactory realisation. Two other important concepts are the illocutionary force, being the intended meaning and effects of an utterance, and the perlocutionary effect, which is the actual effect of an utterance.

In textual domains and analysis, post-structuralist approaches to performativity were addressed by Derrida as being iterative in nature. Each enactment is an iteration or a new instance or ‘text’. Most often the work of Butler (1993) is associated with performativity. Butler placed critical focus on the body as a site of performative discourse. From the humanities, she drew attention to gendered performativity and discursive performativity where citation and iteration are aspects of enactment. Once again it is the act of uttering, the realisation of an enactment, that constitutes performative discourse. In a similar way, every visitor to a MR space creates a new enactment of the piece.

The concept of performativity has been widely taken up in performance studies (Parker & Kosofsky Sedgwick 1995, Broadhurst 1999, Fischer-Lichte 2008) as well as in informatics (Jacucci et al. 2002). In the latter, performativity is shaped through the intersections of the digital and computational with participants’ actions. Fictional, imaginative and creative elements are central to the study of situated activities especially in terms of design (Boykett 2006).

Utterance as a performative act has been taken up in applied linguistics, in discourse analysis and pragmatics and, most recently, may be seen to be part of a move towards the study of discourse in and as action (e.g. Norris & Jones 2005). This move, however, does not substantially include installation arts that involve digital technologies or various media, nor does it focus on the computational in the realisation of mixed reality pieces that are a mix of the spatial and temporal. Moving to a more mixed mode of uttering, that includes for example kinesis and visual media, the concept of *multimodal performativity* has been advanced in the contexts of MR arts (Morrison et al. 2010a). In the context of performative productions, Bolt (2008) argues that we need to look more deeply into how to assess their effects in relation to the concept of perlocutionary force. We argue that one initial way to do so is to look into their design and the potential for articulation.

Recent manifestos & directions

Jacucci et al. (2005) have developed a manifesto for performativity that has import for designers. It is the mode of performance that enables designers to develop suitable designs, ones that are realised via the interplay between the acts of participants at interpretative and expressive levels. Based on his own experience in theatre, Haseman (2005) motivates for a

performative paradigm for creative research. At the level of utterance, what is said, pictured, enacted and generated constitutes the work and our experience and engagement with it.

However, as Bolt (2008) notes, it is all too easy for any act to be labelled performative. In the context of creative arts-based inquiry, she observes that performance is not to do with a simple correspondence theory between word and world. It is very much about doing things in the world. Following Austin, an utterance also has performative effect; its materialisation is its constativity. For Bolt (2008: online, original italics):

The aim of a performative paradigm is not to find correspondences but rather to recognize and 'map' the ruptures and movements that are created by creative productions. Here the work of art is not just the artwork/performance [sic] or event, but is also the effect of the work in the material, affective and discursive domains. The problem for the creative arts researcher is recognizing and mapping the transformations that have occurred. Sometimes the transformations may seem to be so inchoate that it is impossible to recognize them, let alone map their effects. At other times the impact of the work of art may take time to 'show itself', or else the researcher may be too much in the process and hence finds it impossible to assess just what has been done.

Performativity is centre stage in much humanist inquiry (Loxley 2007). One of the distinctions perpetuated in discussions of Austin's early work is between serious and more trivial aspects of the performative. Much weight has been placed on perlocutionary acts and force as connected to the non-trivial from a speech act view. In performance studies, in contrast, pastiche, play and irony have predominated. These approaches have highlighted a different notion of performative acts where, as is often the case with mixed reality works, working out and playing by and with the rules of a system and its affordances is key. However, referring back to the original work of Austin (1962), Loxley (2007: 164) reminds us that, "The difficulty, though, is that an understanding of the rules of the game cannot simply take the place of an accompanying understanding of the seriousness of what is being witnessed."

Performativity, in and across these various framings, has bearing on how we design for and engage audiences in participative discourses and the production of these discourses in the practices of social mediation. Bolt (2008: online) stresses that what we are still faced with is "... how we assess the illocutionary force and perlocutionary effect of the performative production. If we are to [be] employing such concepts in creative research, we need to establish some way of mapping the degree and calibre of these dynamics in creative productions."

Little research has tackled this from a design view and less still from a research by design perspective. The text below attempts such a move and to dig deeper into the design considerations in making two distinct installations works. As has been argued (Morrison et al. 2010) this is very much a matter of designing for performative action on the part of participants, priming certain action and leaving room for self-directed activity. Each of these is needed for meaningful performativity to be realized on the part of audiences.

From On The Inside Out

Two works & performativity

As a group of authors to this article - artists, designers, teachers and researchers - we have considerable experience in making digital images, video and mixed media installation works, documenting and mediating them electronically, online, in presentations, via video, etc. We mention these not simply to profess a collective cornucopia of mixed media, mediations and methods. Our experience is located in practice and built through critical analysis. Creative production and theoretical, interpretative reflection are intertwined and are now linked in a research reflection as part of a wider practice-based arts project. The works were documented

in exhibition with respect to audience participation. Websites were developed to contextualise processes of art making and public sites of use. Presentations and research papers were developed. In the section below we draw on these various modes of making and reflecting, and include material from our shared discussions and exchanges.⁷

Dislocation

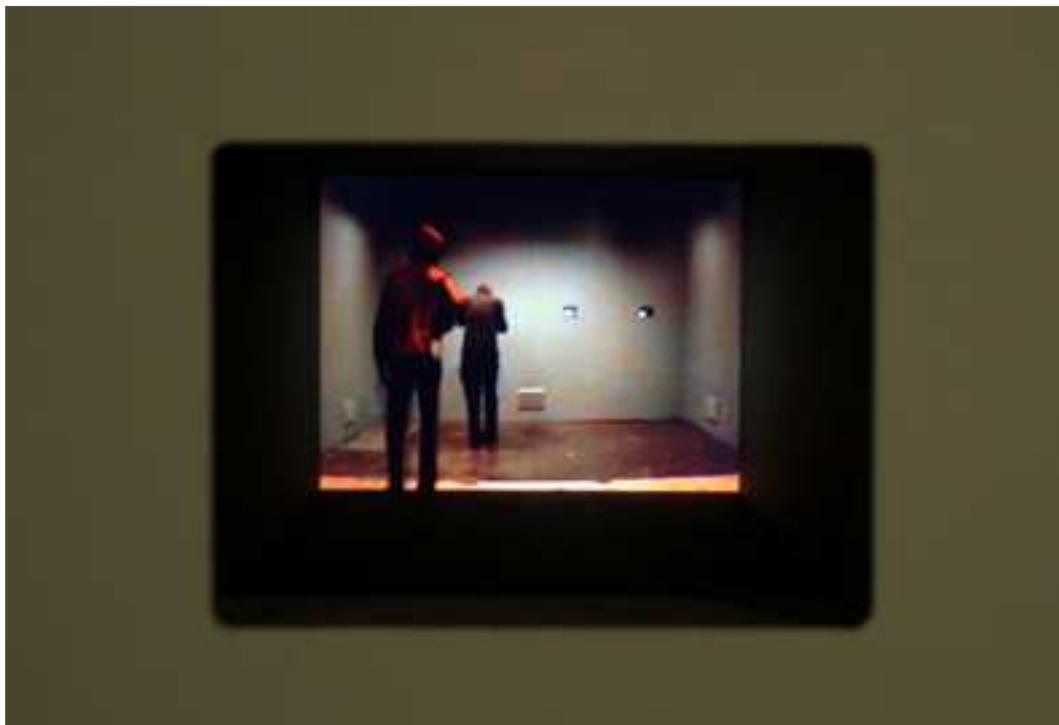


Figure 5: *Dislocation*: inset screen showing composite of audience member and virtual character.

Dislocation was developed independently by Alex Davies but it follows many shared approaches to working with digital tools and installation arts that has led to and grown from his ongoing collaboration with *Time's Up*. Concerning MR and performativity, the core concern at *Time's Up* has never been to design for the perception of experiences of an audience, regardless of the importance of and our interest in these issues. Rather a principal design criterion has always been to anticipate the many and multifarious ways in which participants can and could act, perform, and behave. As such, again and again we have run up against a plethora of barriers and problems, blockades and bottlenecks, as we attempt to imagine and pre-empt the possible actions of a visitor or a group of them. Our aim has been to ensure that no action is wrong, that frustration is the last emotion that a participant feels.⁹

All actions must make sense, all actions must be accepted and accelerated by the system, amplified out into the mixed reality space that the participants are co-creating performatively. It is imperative that immediate feedback is perceived - all actions must lead to a reaction. If the visitor is ignored in their actions, they will soon tire of their behaviour. After the scenario of immediate feedback, we aim to encourage participation and involvement by creating, allowing and encouraging larger scale cycles of involvement and feedback. This can be seen in *Dislocation* as the immediate scenes of playful interaction between the participants, slapstick silliness and perceptual play, taper off and the system begins to offer longer scale and deeper levels of action. In the piece, 'autonomous' participants and non-player characters, such as the guard dog or bag snatcher, appear in the scene and interact with one another, or simply act out scenarios that only superficially react to the behaviour of the visitors.

However, the design of these interactions - with their timescales of action and strategies for reacting to inopportune visitor actions - is a difficult process. It is perhaps such problems that form the core of what we understand as the area of design for performativity. We encourage visitors to act, we do not wish to inveigle them into certain behaviour or prescribe or proscribe actions with well-placed explanatory notices and descriptive diagrams. All of their actions must be allowed and not be invalid in the world which is built for them. Note, however, the depth of meaning might be more developed in certain forms of action - we do not attempt to make all possible actions maximally interesting.

Time's Up has long aimed to build 'worlds', and these worlds take maximal advantage of the inbuilt interactions of the physically active and present world, adding layers and levels through mixed reality systems as *Dislocation* embodies. An interest in such worlds is not evoked through undue complexity, rather through a form of simplicity and most importantly, of openness to any and all forms of action. Here illusion often plays an important role.



Figure 6: *Dislocation* and the participant as performative agent.

Dislocation is centred around this experience of illusion. Performative design is essential in the construction of this illusion, and without it, the work would not succeed. What is meant here by performative design is the process by which the necessity of audience enactment is taken into consideration. Key to this is the audience's initial introduction to the MR space and their subsequent response to their mediated video image. From the moment the audience member enters the artwork, it is their own action which establishes the relationship between the physical space and the live mediated image. Particularly through body language, the audience becomes part of the mediated environment while also occupying the physical space, thus generating an augmentation of the reality. In this way, the audience itself activates the illusion by becoming part of the physical space to which the onscreen representation refers.

This performative action must occur in order for the audience to accept the subsequent MR content (the virtual characters) and believe the illusion. Several features of the work are part of this design. The overall environment is designed to create a sense of naturalness, the installation room is generally unassuming, there are no complex interfaces inherent in the work and the actions of the virtual characters are plausible within the context of the environment. These factors enable audiences to freely interact with their environment in intuitive and natural ways, unencumbered by the underlying technologies. Because of this freedom, audience members are more likely to initially engage with the MR displays and the subsequent virtual entities present in the space, without having to learn complex interfaces.

The success of *Dislocation* lies in its openness for audience interpretation of the narrative fragments presented. After the initial illusion dissolves, the installation provides the audience with a loose framework to playfully interact with the virtual characters and other audience members present. The presence of the virtual characters additionally acts as an 'ice breaker' between disparate groups of strangers interacting with the work due to the fact they all participants are equally thrust into the same narrative space together and share this common ground. These factors encourage audience members to engage and interact when they would not conventionally do so in these circumstances.

Several modes of performative interaction are afforded to the audience as their experience of the work shifts. The first is centred around the individual audience member reacting to their own video image, mediated through the visual display. The unusual perspective presented by the camera, provides a foundation that shifts the audience's bodily perception and encourages action with their mediated self image. The second layer of interaction is founded on the same principals as the first however involves multiple individuals engaging with each other via the mediated image. The third layer concerns the interplay between audience members and the virtual characters that co-inhabit the space.

Dislocation creates for the audience, firstly a performative context, and secondly, a structure to perform in, providing both physical and virtual counterparts to be included in these performances. The relationship between the concept of performativity and the opportunity for audience performance drives the design of this artwork as their combination is how the robustness of the illusion is maintained.

Unreal Installation

Design-wise, *Unreal Installation* deals with extended techniques for a parallel montage of clips played side-by-side, spatial issues such as creating panoramic views or a dollhouse perspective out of several shots and other synthesized coherencies within a single room or view. It is also concerned with the furthering of visual language in relation to responsiveness and agency. The film-like dimension is easily neglected in new media due to a focus on functionality and subjectivity - 'first-person-views' are highly saturated with the visual markers of the individual perception - that are often expressed by a wide-angle shot of scenery.

In *Unreal Installation*, the world inhabited by the Other is presented through what is like a magnifying glass that shows a condensed version of the world; this is what happens to our attention when we walk into a cinema-setting. The effect is the apparent creation of a space where there is intimacy as well as the need for integrity. This is a small space where distance is expressed through each centimetre, and where minimal action counts.

Unreal Installation aspired to be an artistic interpretation of cinematic experience as a cognitive surface with which to engage. The installation handled mimetic desire as well as spatial awareness, accompanied by alienation that comes out of disorientation in time-space. Additionally, the aim was to establish a platform for site-specific narratives as part of the wider art practice of *Performing Pictures*. In terms of designing and constructing an MR installation space, we projected the inner workings of the room onto the outer wall. The inside-outside manoeuvre was initiated by the original Other (the actor Simon) performing against himself in a quirky set-up called 'Simon vs. Simon'. This performance within the ongoing performance apparently lifted the lid off most inhibitions; visitor-performers related to actions by the original Other as well as the other Other.



Figure 7: *Unreal Installation* with audience and actor copresent

Rather than creating an interactive narrative based around choice and multi-linear plots, the *Unreal Installation* addresses issues of non-timing and the boundaries of film and performance. The rules of dramatic effects apply as in traditional film and theatre: distances between characters, timing of response and action, and dramatic irony. The viewer moves back and forth within the same narrative context, navigating or simply injecting himself/herself into the loop by his/her presence. This adds a tactile dimension to the activity of viewing moving images; a bridging of the cerebral process of interpreting visual information with the corporal sensation of 'touch' and participation occurs. At the core of the work there is dramatic interpretation via different traditional sub-genres such as mime, comedy and tragedy. Elasticity in timing and repetition as well as the tactile dimension are the additional ingredients in the construction of an ongoing story that can be 'played through.'

In this space, the pre-recorded Other forms an evasive link between opposing points-of-view in a coherent setting where time as well as space were diverging. The viewer becomes an active participant while unfolding the spatial and time-based shift of perspectives. Connections were to be made either beforehand, or by simply testing what the Other would do, when he would reappear and when he would leave the scene. At a micro level, gestures and quirks are major elements of involvement in everyday life. The connectivity of user input and mediated response may allow for intricate as well as simple and crude build-ups of basic cornerstones of human inter-reaction: gestures can be studied through the magnifying glass of responsive media, iterated and skipped, as well as their being sifted through.



Figure 8: *Unreal Installation* and the flat panel effect of the work with audience participation

One design issue with *Unreal Installation* was to experimentally employ a relation-image whose function is the presentation of an interaction, comparable to what Deleuze said of cinema: cinema is not an image to which we might add movement, but rather directly a movement-image, while the time-image - through an inverted subordinate relationship - is a direct presentation of time. *Unreal Installation* directly addresses this point by short-cutting representational values and mimetic dimensions and by skewing both time and space.

Another element significant in designing for performative enactment is the role of the camera in the depiction of moving imagery (Deleuze 1985). In *Unreal Installation*, the camera lends itself to the role of a god-like narrator whose location 'at the scene' cannot be questioned. It is omnipresent and ubiquitous: it does not have to explain itself; it is simply present. What is established is a 'language' through which the camera plays a very serious game: it will show us 'how things are.' This is one of the points from which the very power of cinematic imagery stems. The camera is clearly a vivid participant in the ongoing performance-drama. However, there are additional conventions attached to this. From the subjective point-of-view - mimicking the gaze of a character or even the viewer by a set of aesthetic choices such as the positioning of the camera and the way it moves (if it moves at all) - it is only in the subjective point-of-view that the camera will abdicate from an omnipresent, god-like perspective. *Unreal Installation* plays with the notion that the camera is fixed and that the point of it being there is natural. The camera can be seen in relation to the viewer; this becomes like a dance to which I as Other am invited. It is of course not enough to identify oneself with the camera: there is no 'first person view' since the camera does not move along a defined line. In fact, what I am moving is myself in front of a very fixed dance partner.

Unreal Installation suggests a certain flatness. It connects the act of viewing to the viewer as a panel, such as the viewer on a digital camera or camcorder where a 3-dimensional world is cornered and framed into a small panel. The reduction gives a clear significance to what is inside and what is outside the picture. Importantly, *Unreal Installation* deals with picturing, rather than representation or simulation, and involves participants in its performative re/production. Visual narration may be re-shaped akin to the musical variations of late 19th century composers. The 'story' becomes a matrix of possible gestures to be explored by the viewer-interpretor.

Reflections

Modes of cognition and enactment

Designing for engaged performativity in MR arts contexts confronts us with issues of composition and cognition. In writing on the ground breaking installation work *Listening Post* by Mark Hansen and Ben Rubin, Raley (2009: 32) notes that:

... it quite distinctly offers us an ‘ear to the ground,’ or window looking out onto the crowd through which we can see, hear, and encounter the foreign and unfamiliar. It is, finally, paradigmatic for how I understand the work of the digital humanities for its text analysis; its mobilisation of life content; its emphasis on multi-sensorial engagement, of which semantic processing would be one component; and its gesture towards polyattentiveness, a mode of cognition that is and yet is not available to us.

The two installations presented here offer some means to a similar engagement on the part of engaged participants. They also challenge us to reflect on the types of descriptions and analyses we construct in not only examining the mediated and participative public outcomes of important works such as *Listening Post*.

The MR art installation has multiple origins, from the splices of the dadaists to generative algorithms; it is now a prominent feature of contemporary art. These installations are nonetheless cast, communicated and consumed in a mode of mixed reality. It is this blend, selection and ‘tweening’ of potential and fresh actions and participant experiences that is also a matter for design research where earlier notions of interaction were more functionalist and less expressively located. That our bodies and minds, perceptions and memories, anticipation and avoidance might all be in flux, and be recursively and iteratively in play and at play, challenge us to conceive of such works as designs and by way of research by design.

A medley of practice and theory in performativity

These two works provide some means to understanding practice and theory relations and a number of core properties in designing for performativity in MR installation arts. This is in part an attempt to satisfy the call by Bolt for mapping and moulding the dynamics in creative productions.

1. In different ways the works accentuate that participants meet design deconstructions of conventions, expectations and comfort. The mixing of recorded and live is partly masked so that this is understood in the playful processes of engagement by participants. Location matters in this revelatory enactment when we see the oscillation between gallery spaces and those ‘projected’ within, but just beyond, their physical walls.
2. Designing for performativity encompasses a relational design aesthetics suited to MR installation arts: the public space of the gallery is coterminous with and proximal to the wider reality in which the participants watch, move and think. Sound and image are co-produced through what is given in by the pre-mediated and by way of unfolding, live action. The proximity of styled performer and emergent audience actor are then looped back to other participants. Together these may be co-present yet also divergently realised.
3. In designing MR installations, such as these two, it is possible to see the ‘materialisation’ of a design poetics that is based on emergence rather than fixity. What emerges varies and does not have to be based on a digitally generated logic; *Dislocation* uses multiple recordings to enable this emergence, one that includes

single and multiple participants' own presence, whereas *Unreal Installation* uses a live actor together with primary recording).

4. Participants encounter and fulfil the design of a self-reflexive experience. Through various, mixed participation modes, the 'audience' is reconfigured in a self-reflexive performativity. Their own membership is made apparent and through which their own 'utterances' contribute to the status and enactment of the work. This is a disclosure of the design of engaged, embodied performative interaction.



Figures 9 & 10: Mixed modes of participation and performativity. (Top) In *Unreal Installation* a large audience observes participants inside the work. (Bottom) In *Dislocation* one participant watches others engaged with the MR work, this as part of her own overall involvement.

These principles show that MR installations are complex design tasks in and of their own construction; few artists in development teams write about the processes, challenges, solutions and work-arounds that are in effect part of a wider iterative, recursive and reflexive design process. Designing for engaged interaction involves more than random generations and iterative poetics. It involves dramaturgy, from the level of both the displayed and performed content and spacial composition (*Unreal Installation*) to the level of system logic, that is from immediate feedback to levels of action that are longer and deeper. This suggests too a move from performative actions to performance, from individual experiences to multiple individuals engaging with each other (*Dislocation*). This dramaturgy is however at play with the principal openness that rejects prescribed actions and certain behaviours which make designing for performativity an act of balancing, generating and framing variations.

As Koskinen argued, as do Barrett and Bolt (2007) with reference to a variety of arts-based projects, attention is needed to the experimental status of practice-based inquiry. On the basis of our practice-based inquiry - one that extends beyond the two works presented here and into various other domains of art and design - we suggest that there is also gain to be had in further developing the notion of *performative design*.

Towards performative design

Bolt (2007) reminds us that we also need to pay attention to the effect of works of art in material, affective and discursive domains and not just that they are exhibited or performed. Here work remains to be done to link these domains to the perlocutionary force of what is realised; this in itself is a complex, transformational process. Such change can also be understood at the level of conceptual design, synaesthetics and cross media selections and arrangements, the mechanisms and spaces that allow for various types and statuses of affect, and the overall aesthetic and poetic discourse that emerges iteratively and within the time of 'attendance'. Not all of this is either designed to be harmonious in terms of perlocutionary effect nor is it often straightforwardly traceable in MR arts. Research is also needed into the shifts and turns, gaps and challenges that such works demand we engage with and challenge us as analysts to follow and situate in a wider MR performative mode of creative expression.

One of the potentials of practice-based research and research by design is that it can question or motivate new concepts and theories, as Biggs and Bucher (2001) argue. Artists and researchers may also reconfigure and reorient key concepts. This also demands that we write analytically about what we design. On agency and the performative, Nolan (2009: 215) writes that:

Finding the means to express interoceptive awareness (in writing, but images and choreographies as well) is intimately bound up with accessing the 'host material' that is the corporeal substrate of writing. Testing our powers of articulation against the limits of articulation is the way we contribute to history, not just the history of our singular bodies as expressive and operational but also the history of what is given to humans to make into marks.

Nolan reminds us that acts of realising, reflecting on and analysing the matter of embodied expression, as is central to much MR arts, also challenge us to face matters of articulation. In this article we have taken up such a challenge by looking into the multiple origins of the concept of performativity and how through co-publication it may be applied to mixed reality installation arts.

We further argue that deep understanding of MR arts, and indeed arts-oriented research by design, lies in the medley of theory and practice. Concepts, theories, critiques and analyses are also taken up in different design domains and activities and this also applies to MR related activities. This take up is a part of conceptualising such works in emerging practices, and importantly when new materials and their combinations are being explored.

Nitsche (2004: 56) writes that:

Even when (and if) research draws level with production, and a consistent theoretical framework is established – as it has been, for example in film studies – practice-based research will remain necessary, to push development further, evaluate theories, and ensure that both the research field and the productions achieve their full potential.

This emergent aspect in the developmental processes of designing MR art works is also part of MR's reaching for sufficient, satisfying and subversive participation by audiences. Here an emergent, quality of the practice-based inquiry and a mode of research through design has potential to contribute to reflexive redesigning.

To open out to such combinatorial discourses is also to analyse what it means to experiment in a mixed reality type of inquiry. We argue that what is needed is conceptualisation and practices of co-designing for performativity, but that this performativity is also co-performative in character. We suggest that what is now needed is *a mode of performative design*. This is one that entails other approaches to design research (e.g. critical, discursive, participatory) in conducting research by design. However, a more extended view on performative design research centred on practices geared towards active participative engagement – affectively, expressively and communicatively – may be co-partnered with the emergent, tentative and even ludic actions on the part of participants for whom the design for performativity becomes material for their own mediated meaning making. In performative design terms, on the part of participants in mixed reality installations, this may entail the experience and reflection on being ‘the Other’ and processes of negotiating ‘dislocation’ and the effects of engagement in realising designs for performativity.

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Notes

¹ The text is co-authored by researchers and designers in a dialogical mode of reflection in and on action. This dialogue is the outcome of a funded research project into mixed reality arts called gRIG (Guild for Reality Integrators and Generators) with partners from different European countries and art and research concerns. In this case three partners from gRIG have converged on a shared problematic but with a variety of interests, experience and perspectives. The three collaborators to this article are: an interdisciplinary research centre, InterMedia, where practice based research into communication design includes experimentation with tools, media and expression; a practice oriented research centre, a practice-based project and related domain, *Performing Pictures* at the Interactive Institute in Sweden, within a wider and multi-level research institution;

and a digital arts collective *Time's Up* from Linz, Austria, that works in the boundaries between physical computing and art with artistic and research outputs.

² For additional images please see, on *Dislocation* (Retrieved 15 November, 2009):

<http://www.flickr.com/search/?q=dislocation&w=23577816%40N00>

³ On *Unreal Installation* (Retrieved 15 November, 2009): <http://www.performingpictures.se/index.php?id=230>

⁴ In the UK this has been taken up through the funding mechanisms of the Arts Council as well as through procedures connected to the research assessment exercise (RAE) (Biggs 2006a). Innovative doctoral programmes, such as those at RMIT, follow a traditional academic thesis mode, a 50-50 split between theory and practice, and an exhibition or production process with supporting documentation. In part, this reflects the inheritance from a crafts and polytechnic tradition (Rust et al. 2007). However, the knowledge and expertise of the many actors involved in the construction of digital art installation works along with the various tools and digital technologies that are involved, mean that the relationship between theory and practice may be even more intricately composed (e.g. Edmonds et al. 2006).

⁵ Based at the University of Hertfordshire in England, for five years a series of online *Working Papers in Art and Design* have discussed many of the main issues in practice-based inquiry. Similar issues have been addressed in Australia resulting in a new transdisciplinary and online peer reviewed journal called *Creative Approaches to Research*. This journal based at RMIT in Melbourne, publishes in multiple media formats as a means to widening the representations, voices, epistemologies and means of reporting but also analysing research. Publication includes experimental pieces by doctoral students. Also in the Australian context Barrett and Holt (2006) present a range of practice-based research, some of it from wider research project some of it from specific doctoral programmes of study. Similarly, practice based research and research based practice have been discussed over the years in the work of CUMIS at Cambridge University, seen for example in a special issue of *Digital Creativity* edited by Maureen Thomas (2004).

⁶ Drucker (2009) is one of few interdisciplinary researchers who faces such challenges head on by asking how mergers and distinctions between technological and our participative design and engagement challenge earlier conceptualisations of the digital humanities. She argues that what is needed in response to earlier notions of digital textuality and by extension 'new' media, is an alternative knowledge framing that takes us into a more speculative mode of inquiry and reflection. This is framed within what she called 'speculative computing', referring to a body of applied and theorised research originating in projects based at the SPECLAB at the University of Virginia.

⁷ Audience implies a listening recipient, spectator a passive viewer.

⁹ Retrieved 15 November, 2009: <http://schizophonia.com/>