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**A MODEST DEFENCE OF DISABILITY SIMULATION
WITHIN AN ARTS ACCESS CONTEXT**

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**ΜΙΑ ΘΕΤΙΚΗ ΔΙΑΣΤΑΣΗ ΤΗΣ ΠΡΟΣΟΜΟΙΩΣΗΣ ΤΗΣ ΑΝΑΠΗΡΙΑΣ
ΓΙΑ ΤΗΝ ΠΡΟΣΒΑΣΗ ΣΤΙΣ ΤΕΧΝΕΣ****David Feeney***

ΠΕΡΙΛΗΨΗ

Το παρόν άρθρο υποστηρίζει ότι τα άτομα με αναπηρία όρασης που επισκέπτονται πινακοθήκες θα έπρεπε να έχουν την ευκαιρία να διαμορφώσουν οι ίδιοι τις αισθητικές εμπειρίες που προσφέρονται μέσα σε αυτά τα περιβάλλοντα παρά να διαμορφώνουν αυτές τις εμπειρίες μέσω των βλεπόντων μελών των υπηρεσιών που στελεχώνουν τις πινακοθήκες. Το Sight-Sim™, ένα λογισμικό προσομοίωσης, χρησιμοποιήθηκε σαν μέσο για την απόδοση αυτής της διαφοράς και τη δυνατότητα πρακτικής εφαρμογής του σε πραγματικά πλαίσια. Σε αντίθεση με τις υπάρχουσες κριτικές για την προσομοίωση της αναπηρίας, η προσέγγιση αυτή δεν στηρίζεται σε μια απλουστευμένη υποθετική δυνατότητα της προσομοίωσης να συμβάλει στην ευαισθητοποίηση για την αναπηρία ή στην ανάπτυξη ενσυναίσθησης απέναντι στην αναπηρία. Αντίθετα, η προσέγγιση αυτή έχει ως βάση την επίγνωση της αδυναμίας της προσομοίωσης για τη δημιουργία της εμπειρίας σχετικά με το χώρο της αναπηρίας. Στο άρθρο παρουσιάζονται οι στόχοι της εφαρμογής αυτής της προσομοίωσης και η επιτυχία της εφαρμογής αυτής στην αύξηση

*Dr David Feeney is Senior Lecturer in Disability and Education, at the Liverpool Hope University, UK. feeneyd@hope.ac.uk

του επιπέδου εμπλοκής επισκεπτών με αναπηρίας όρασης με έργα τέχνης σε πινακοθήκες. Επίσης, παρουσιάζονται ορισμένα διακριτά αλλά αλληλένδετα οφέλη της προσομοίωσης τα οποία φαίνεται ότι έχουν αγνοηθεί από άλλους μελετητές. Ορισμένα από αυτά τα οφέλη είναι η αύξηση των επιπέδων δράσης των ατόμων με αναπηρία όρασης στη διαδικασία πρόσβασης στην τέχνη, η επαναθεώρηση της κονστρουκτιβιστικής προσέγγισης στο χώρο των μουσείων αναφορικά με την πρόσβαση στην τέχνη με θετικό και χειραφετημένο χαρακτήρα, η άρση του προνομίου που παραδοσιακά είχαν οι βλέποντες ειδικοί σε πρωτοβουλίες σχετικές με την πρόσβαση στην τέχνη και η δημοκρατική αναθεώρηση της διαδικασίας της καλλιέργειας του αισθητικού γραμματισμού.

Ο Δρ. David Feeney είναι Λέκτορας στο Liverpool Hope University του Ηνωμένου Βασιλείου με αντικείμενο «Αναπηρία και Εκπαίδευση». feeneyd@hope.ac.uk

ABSTRACT

This paper presents the argument that gallery visitors with visual impairment should be allowed to author the aesthetic experiences afforded to them within such environments, rather than having these experiences authored on their behalf by fully sighted members of gallery access teams. Sight-Sim™, a piece of simulation software, is brought into service as a means of illustrating this distinction and the feasibility of its practical implementation. Unlike many of the existing endorsements of disability simulation, the tentative defence outlined here is not premised on the naively assumed capacity of simulation for awareness-raising or the cultivation of empathy. Rather, the defence is volunteered in full awareness of the impossibility of simulating the experience of disability. After the modest objectives of the form of visual impairment simulation illustrated here are outlined, its success in heightening the engagement levels of gallery visitors with visual impairments in works of visual art is evidenced. A number of distinct but interrelated benefits of simulation, neglected by previous advocates of simulation, are then identified. These benefits include: the perception of increased activity levels in the process of art access by individuals with visual impairment; an affirmative and emancipatory reconsideration of constructivist approaches to gallery education within an art access context; the “de-ghosting” of the aesthetic experiences generally afforded to gallery visitors with visual impairment; a rescinding of the privilege traditionally afforded to fully-sighted docents within art access initiatives; and a democratic reconceptualising of the process of the cultivation of aesthetic literacies.

Introduction

Theoretical conjecture about the value and feasibility of a definitive severing of forms of appreciation deemed to be aesthetic from those to be diagnostically catalogued as non-aesthetic has been richly contested throughout the history of analytical philosophy. Attempts to delineate these boundaries tend to be structured either, on one side of the debate, around the nature of the object of the experience under review or, on the other, around the nature of the relationship between the perceiver and the object or environment perceived. Kingsley Price, a pivotal figure in the generation of this debate, famously contended that the issue that effects the most decisive bearing on the question of whether or not a certain experience is aesthetic is the question of whether or not the element stimulating the experience can be classified as an aesthetic object (Price 1979). The current exploration of the engagement levels of individuals with visual impairment in works of visual art is directly informed by one of the several rejoinders to Price's assertion - that of Michael Mitias (1982). Concentrating on the experience of engaging with a work of art, Mitias refers to the individual who perceives an artwork as 'an I'. 'This I,' he contends,

is not a fleeting event, but an enduring reality. It is the author of its experience; it is the unity of its experiences. It is also the agent which structures the experience. During the experience I remain the subject which authors the experience and also the medium within which the object becomes a living, meaningful reality in the experience (Mitias 1982: 159).

The thrust of Mitias' line of argument is particularly persuasive when reflected on in relation to the nature of the experiences afforded to gallery visitors with visual impairment. In such cases, the authority responsible for the 'structuring' and 'authoring' of the experience generated by the works of art on display does not appear to lie exclusively within the agency of the individual having the experience. In the verbal mediation of paintings within art access initiatives, what is described does not correspond directly to the perceptual experiences of the beholder, and is often at considerable variance from this experience. This would appear to be in direct conflict with Mitias' directive regarding the imperative that one should 'author' one's own aesthetic experiences. This aspect of access provision is presented here as the 'ghost-authoring' of aesthetic experience. What follows is a series of reflections on the impact of such surrogate structuring of the aesthetic experiences of one person on the perceptions of another. These reflections are informed by one component of an empirical study conducted in four galleries across Scotland, the objective of which was to ascertain the difference made to art engagement levels when access provision was structured around the perceptions of the gallery visitors with visual impairment, rather than those of fully sighted guides.

The form of simulation underpinning the arguments developed here needs to be carefully demarcated and qualified within the context of the primary tenets of a rich history of criticisms of disability simulation, many of which are not contested in what follows. It is worth mentioning, in this regard, that when the opportunity to undertake the research presented here initially presented itself, my intuitive dissuasion was informed by my familiarity with many compelling lines of criticism. The lapse in my career-long reticence towards such activity was not prompted by a change of heart in relation to the alleged functions of awareness-raising, attitudinal improvement, the cultivation of empathy, or any of the ‘benefits’ traditionally associated with disability simulation. The persuasiveness of existing criticisms of these customarily cited validations of simulation is such that in the development of this very qualified defence of such an undertaking a wide berth of these modes of endorsement is determinedly steered. The alternative line of argument plotted here has been prompted by a conviction that whatever potential might inhere in disability simulation has historically been tapped and advocated in a series of misguided ways, with the result that potentially meaningful benefits have remained unconsidered. As will become clear, the potential benefits considered here relate to such factors as perceived activity levels, the addressing of prevalent assumptions, the tenets of constructivism within a museum context, and the process of cultivating aesthetic literacies.

Disability simulation

The perceived potential for the application of disability simulation within pedagogical contexts was identified in the face of observations by a number of researchers (see, for example Burgstahler 2002; Leyser et al. 1998; Thompson, Bethea & Turner 1997) of a disturbing discrepancy whereby the numbers of disabled students in mainstream educational settings was increasing, while the knowledge levels among educators and administrators about how to accommodate the needs of these students was not undergoing a corresponding increase. In response, simulation started to be regularly brought into service as a teaching tool within many disability-awareness initiatives.

In general, these simulation activities endeavour to generate selected components of reality in order to encourage participants to develop skills, further their knowledge and appreciation of, and develop more informed attitudes about that reality. Simulations have been found to be engaging approaches to awareness-raising (Hunter & Clark 1977; Randel et al. 1992), and to have a capacity for prompting attitudinal change, and effecting increases in empathy and self-awareness (Brendemeier & Greenblat 1981; Hyman 1978; Patterson 1980). The alleged benefits of simulation have been compared favourably with states of awareness arrived at through more passive exercises such as reading a book or watching a documentary (Herbert 2000; Patterson 1980).

Although these earlier writers on the subject of disability simulation have outlined its potential benefits, two general categories of response to these initiatives emerge upon an initial trawl through a more contemporary body of literature on the subject: those writers who intuitively think that disability simulation is a promising way forward, but whose subsequent research discounts this potential, and writers who are intuitively sceptical and whose research into simulation validates their instinctive misgivings.

Criticisms of simulation

Considering that simulations of disability have traditionally assumed forms as crude as requiring fully able-bodied individuals to use a wheelchair for a brief period of time, the insertion of balls of cotton wool in the ears of a fully-hearing individual to duplicate hearing impairment, or the wearing of spectacles which have been light-filtered or smeared with vaseline to simulate different manifestations of vision, the level of criticism targeted at such initiatives is hardly surprising. Despite the alleged benefits alluded to above, many critics (French 1992; Glazzard 1979; Grayson & Marini 1996; Herbert 2000; Kiger 1992; Kosciulek & Symanski 1993; Orlansky 1979; Wilson & Acorn 1969; Wurst & Wolford 1994) have expressed serious misgivings about the efficacy, ethics, and general value of the well-intentioned but ultimately misleading enterprise.

Models of disability: Charges of individualisation and medicalisation

Arguably, the least controvertible criticism levelled against disability simulation is that it jars with established paradigms of critical disability studies (Burgstahler & Doe 2004; French 1992; Scullion 1996). When addressing issues and experiences of disability, the focus traditionally placed by professionals working within the domains of medicine, social work, education and rehabilitation has been on an individual's functional limitations and on the development of person-specific accommodations. This perspective is interpreted as manifesting itself in a perceived correlation between disability and personal 'inadequacy', and in forms of intervention that work towards cure or rehabilitation of the individual, rather than addressing debilitating environmental features. Increasingly, disadvantages associated with disability are perceived as being a consequence of disabling attitudes, widespread discrimination and poorly designed forms of communication and environmental features (See, for example, Jones 1996; Oliver & Barnes 1998; Swain & Lawrence 1994). Disability simulation is often criticised for being aligned with the former approach to disability. Its underpinning rationale is widely perceived as endorsing a synonymy of disability and functional limitation, tallying with medicalised and individualised approaches to disability without factoring social considerations or potential environmental accommodations into its approach (Burgstahler & Doe 2004; French 1992).

Methodological criticisms: Scant evidence of attitudinal change

Clark, Ferziper and Reynolds (1979) and Orlansky (1979) present anecdotal endorsements of the capacity of disability simulation to effect attitudinal change. More experimental studies undertaken by researchers such as Chard (1997), Thatcher & Robinson (1990) and Wiener (1986) have also resulted in similar endorsements. Claims relating to the capacity for attitudinal change tend to be heatedly disputed in the literature, however. Critics tend to focus on what Burgstahler and Doe (2004) term the ‘unintended learning’ that is widely deemed to be an inevitable derivative of simulation. Such criticism often targets a lack of convincing empirical data. Herbert (2000) and Kosciulek and Szymanski (1993), for example, highlight the lack of compelling evidence available to advocates of disability simulation when presenting their respective cases for the generation of attitudinal change. Herbert (2000) observes that these affirmations of the potential for simulation to cultivate favourable attitudes towards disability are invariably compromised by methodological shortcomings, with perceived effectiveness often being contingent upon user enjoyment and predicated on a critical neglect of the practical effectiveness of the approach to simulation in question (see also Kiger 1992). No attitudinal changes whatsoever were identified, for example, by Wilson & Acorn (1969) when they undertook simulation of blindness, deafness or mobility-related disability with college students.

The new insights into disability prompted by these exercises tended to take negative forms, such as an enhanced sense of self-gratification, or the experience of frustration at the sudden subjection to a heightened dependence on others. While Leo and Goodwin’s (2013) critical review of the meanings attributed by undergraduate students to disability simulation generated some ostensibly affirmative themes (‘I see things differently now’), the responses were generally circumspect and somewhat less than positive, with several participants expressing various forms of unease at subjection to the process. Similarly, although Glazzard’s investigation of disability simulation (1979) found a general self-reported increase in understanding of disability among non-disabled participants, these varieties of understanding assumed invariably negative forms, manifesting in such sentiments as frustration, perceived isolation, humiliation, anxiety and disquiet. Participants in research undertaken by Pfeiffer (1989) found the experience of disability simulation to be primarily ‘demeaning’.

Gratification-inducing: Self versus other

Among the most commonly encountered participant responses to the process of simulation in Leo and Goodwin’s (2013) study was ‘thank goodness I don’t have a disability’. Similarly, Wurst and Wolford’s (1994) subjects’ experience of disability simulation prompted them to reflect on how fortunate they felt to be non-disabled.

Herbert (2000) highlights the importance of bringing to the attention of those undergoing simulation exercises a range of what he terms “self-versus other-imposed” barriers (p. 7) as part of a meaningful exploration of attitudes towards disability. Elsewhere in his paper, Herbert refers to this as the tendency of non-disabled individuals to “apply a comparative framework when evaluating the capabilities of persons with disabilities” (p. 10). Drawing on Wright’s (1980) insights, Herbert observes that

it is often the case that people without disabilities use their life experience in determining what social, personal and vocational roles are available for persons with disabilities (Herbert 2000: 7).

Similar misgivings inform Sally French’s (1992) criticisms of temporary disablement as a means of awareness-raising. While conceding that such exercises may play some role in helping non-disabled individuals to empathise with the onset of an impairment, French argues that simulation does little to convey the experiences of people with long-term impairments. “It is quite obvious,” French contends,

that if a person is suddenly deprived of his or her hearing, sight, or ability to walk or use his or her hands, difficulties will be experienced and fear and frustration may be felt, but this is not the situation disabled people are in, because they have had time to develop coping strategies or unusual dexterity or strength in other areas of their bodies, and are therefore likely to be far more calm and able than the able-bodied persons’ experience would suggest, which is not to minimize the difficulties they do experience. (French 1992: 260).

In this aspect of her criticism, French goes further than Richardson (1990), who, reacting to a simulation activity undertaken by student nurses who were required to confine themselves to a wheelchair for a single day, observes that it accomplishes little more than to “make a single scratch on the surface of the experience of real people who have a permanent handicap”. French’s argument, delivered with considerable conviction, is that not only is simulation superficial, it can be dangerously counter-productive. Even those authors who are relatively optimistic about the potential of simulation tend to append their qualified endorsements with the caveat that the targeted forms of understanding are unlikely to be cultivated to any meaningful degree by brief and isolated applications of simulation. Many studies of simulation (see for example, Marini et al. 1995; Tate et al. 1990) are therefore informed by the perceived need for a longitudinal approach which takes account of the tendency for people with acquired impairment to adjust over time and to go on to develop rewarding and enjoyable lives.

Related criticisms

The criticisms alluded to here essentially combine to produce a convincing argument that it is impossible to simulate disability. This very observation is volunteered by French (1992: 262). The inadvertent reinforcement of stereotypes has been identified by several critics as an inevitable consequence of disability simulation endeavours. Wright (1978), for example, notes a tendency, stemming from the type of ‘temporary disablement’ alluded to above, whereby feelings of helplessness and perceived inferiority generated by participation in simulation exercises, are imaginatively posited onto the perceived lived experiences of disabled individuals. Simulation exercises are the subject of Vic Finkelstein’s ire when he refers to “ignorant able-bodied service-providers” who inculcate narrow medical and paramedical stereotypes into the minds of future generations (Finkelstein 1991:5). Finally, as disability simulations tend to be impairment-specific, the degree of individualisation inherent in such undertakings has been criticised for being uncondusive to the implementation of universal design (Reynolds 1991).

The study briefly outlined below, which investigates the potential of visual impairment simulation as an art access tool, was undertaken in full awareness of these compelling lines of criticism. As I subscribed unreservedly to the majority of these denunciatory decrees, the preliminary stages of the project were admittedly undertaken with a not inconsiderable element of the type of bad grace that I imagine might characterise the reticent mind-set of a debutant felon. As the research progressed, however, this sense of culpability was displaced by the suggestion that I was unearthing a value of simulation that had not been previously identified and so lay beyond the range of the chorus of admonishment detailed above.

Sight-Sim™

Scientists and clinicians from the Royal Hospital for Sick Children in Glasgow and the University of Glasgow have developed Sight-Sim™, a piece of software which filters images through the degrees of visual acuity and contrast sensitivity of individuals with visual impairment.¹ The intended function of the technology is to grant parents of children with visual impairments greater experiential knowledge of how different environments are perceived by their child. For example, a parent can take a photograph of his/her child’s bedroom and then use Sight-Sim™ to filter the image through a reading of their child’s visual acuity and contrast sensitivity. This generates a new image of the room as it is perceived by the child. The parent is then in a better position to know how the room might be adapted to make it easier for the child to navigate the space (for example, changing the colour scheme, re-arranging the furniture). This process can then be repeated with a photograph of the adapted environment in order to determine

how effective the adaptations have been. The largely enthusiastic feedback generated at workshops where this intended application of the software was trialled prompted consideration of other environments and contexts within which Sight-Sim™ might be usefully applied. The application of this approach within a gallery environment facilitated an assessment of the difference made to engagement levels when access provision is structured around images as perceived by individuals with visual impairment, rather than, as is usually the case, by their fully sighted guides.

Methodology

The research was undertaken collaboratively by individuals with visual impairment, by Visual Impairment Scotland, by FLIP: Disability Equality in the Arts, and by access teams from four art galleries in Scotland. When recruiting co-researchers with visual impairment, a decision was made to target those with a pre-existing interest in visual art. This decision was prompted by a disinclination to subject individuals with visual impairment to the ocular centric environment of art galleries unless they had an expressed interest in painting. A total of 40 co-researchers with visual impairment were recruited (26 female, 14 male). These individuals played an active part in refining the design of the project. Because they expressed discomfort at the prospect of revealing their age, this data was not solicited. All participants, however, were over 18 years old.

Verbal descriptions of a selection of the paintings on display in the four participating galleries were prepared. As part of a preliminary literature review, the principal investigator compiled an extensive list of aesthetic engagement by subjecting a wide array of critical sources on the theme to thematic analysis. At this point, it was deemed necessary to involve individuals with visual impairment in the process of refining the selection of criteria that would be used in attempts to capture and document their levels of aesthetic engagement in access initiatives with and without the application of Sight-Sim™ technology. At a steering group meeting, at which a representative sample of the co-researchers with visual impairment was present, agreement was reached on the ten indicators of aesthetic engagement that had most pertinence to their museum and gallery experiences. A corresponding questionnaire was then devised in order to yield responses from the forty co-investigators with visual impairment in relation to the degree to which these indicators were present when access to particular paintings was structured around the perceptions of individuals with visual impairment, and around the perceptions of fully sighted researchers or members of gallery access staff. Before the workshops began in earnest, orientation sessions were facilitated in each of the four galleries in which the research was to take place. The objective of these sessions, described in more detail below, was primarily to clarify the very specific and limited purposes to which simulation was being applied within the project.

During the workshops, a number of pairs of images were considered with each co-researcher with visual impairment. Each pair consisted of: 1) an image in its original form, and 2) an image, painted in a similar style, after it had been filtered through the visual acuity and contrast sensitivity of the participant. Engagement levels in the same image before and after the simulation process was not evaluated as consensus among the group was that initial engagement in a painting would influence subsequent engagement in it, however much the form of the painting had been modified in the course of the simulation process. The means by which engagement in the paintings under review was facilitated differed significantly for each of the images within each pair. In the case of the unfiltered image, a pre-prepared description of the image as perceived by the fully sighted access facilitator was relayed to an individual with visual impairment. Although they were invited to interrupt the description with questions or observations, individuals with visual impairment remained largely silent during this transmission as they concentrated on the information that was being relayed to them. In the case of the filtered image, the process tended to be far more dialogical. The individual with visual impairment was asked to look at the image in its original form, while the researcher/access professional looked at the degraded image. These exchanges were not heavily structured in advance, but tended to take the form of the participant with visual impairment informing the researcher/access professional about what he/she perceived, while the researcher/access professional observed the degraded image, asked questions, and commented on ways in which the description provided by the visitor with visual impairment tallied with the image at which he/she was looking. The researcher/access professional then relayed what he/she perceived when looking at the image in its original form, and a composite appreciation of the painting would emerge as part of an experiential exchange, which proved equally engaging and informative for both parties.

Initial briefing on the limitations of disability simulation

In order to avoid aligning our undertaking with the claims of traditional apologists for disability simulation, each of our workshops was prefaced by an orientation briefing for all participants (gallery visitors with visual impairments and fully sighted access staff). These briefings drew attention to the considerable and varied limitations of simulation, and clearly outlined the modest and very specific objectives of the research project. This step was in keeping with the recommendations of number of authors (see, for example, Chard 1997; Grayson & Marini 1996; Herbert 2000; Wright 1980), who have advocated the importance of orienting learners to the experience of simulation by facilitating critical consideration of the objectives underpinning its application. At these initial briefings, we explicitly distanced our research from the merits historically attributed to disability simulation.

Attitudinal change

As outlined above, for example, a very significant component of existing criticism of disability simulation relates to its widespread failure to fulfil its avowed aim of facilitating an enhancement of attitudes towards disability among non-disabled individuals. In advance of the workshops, it was made clear to all participants that attitudinal enhancement was not an objective of our particular application of simulation. The fully sighted people involved in the simulation sessions were gallery access professionals. Although levels of knowledge about visual impairment appeared to vary among this group, they shared a resolve to facilitate meaningful and enjoyable experiences for the individuals with visual impairment who frequented their institutions. Although the attitudes of these staff members towards people with visual impairment was not formally evaluated, nothing about their contribution to the project betrayed a disposition towards impairment that was anything but positive. In any case, attitudinal change was not an objective of the project and so criticisms of this failing of disability simulation are deemed to have little bearing on the research described here.

Simulation in isolation

Herbert (2000) outlines a number of issues that need to be considered in the course of deciding whether or not disability simulation might be usefully undertaken. Foremost amongst Herbert's recommendations is the supplementation of simulation exercises with other means of promoting positive attitudes (Herbert 2000: 6). This recommendation is informed by the findings of numerous studies (see, for example, Pernice & Lys 1996; Pfeiffer 1989; Schwartzwald 1981; Wurst & Wolford 1994) indicating that the effectiveness of disability simulation is optimized when simulation is not used in exclusion from other means of disability awareness-raising. This was explained to all participants during the orientation sessions, and in our case, the facilitation of discussion sessions jointly-led by co-researchers with and without visual impairment prevented an over-reliance on isolated forms of simulation. Furthermore, the sessions described here represent only one component of a much wider study, which included comparative studies of such phenomena as sensory vividness, aesthetic testimony, and aesthetic preference among fully sighted individuals and individuals with visual impairment. This multi-faceted approach to art engagement subjected the members of the gallery access teams who participated in the sessions with a perspective on visual impairment that was more comprehensive than could be achieved by simulation alone.

Experiential exchange

Donaldson (1980) suggests that for interpersonal contact between disabled and non-disabled individuals to be effective, these encounters must take place within the

context of equal status relationships. In our case, the sessions were pitched as an informational exchange, where fully sighted museum and gallery staff and visitors with visual impairment would learn from one another about the ways in which they received and responded to the impact of works of visual art. In the course of this process, it became clear that participants with and without visual impairment were equally valuable sources of expertise within the facilitated experiential exchange. This reciprocal and non-hierarchical transfer of experience served as a means of eliminating the obvious potential for the emergence of the forms of power imbalances that may have otherwise arisen within the visually charged environment of an art gallery.

Individualized approaches to art engagement

The concerns outlined above in relation to the medicalization and individualization of disability inherent in simulation exercises would appear to have the most obvious bearing on an approach that entailed filtering digital images through the levels of visual acuity and contrast sensitivity of individual gallery visitors. Two aspects of our approach are worth mentioning in this regard.

Firstly, it was made clear at all introductory sessions that our application of simulation was not in any way informed by the suggestion that disability can somehow be reduced to a series of medical readings, or that is not primarily manifest in the prevalence of debilitating social arrangements. To generate discussion, participants were introduced to the social and medical models of disability, and to a number of arguments about the shortcomings of the binary attitudes often engendered by the distinction between them. Vehmas & Mäkelä's account of a "realist ontology of disability" (2008), for example, was introduced as a means of encouraging visually impaired participants consider whether aspects of their experience of visual impairment might be said to pre-exist social or institutional construction. The visually charged art galleries proved to be fruitful environments within which to discuss whether impairment is dependent for its existence on such institutions. While these discussions did not yield consensus, they proved successful in placing visual impairment and the various limitations inherently attendant on attempts to simulate its lived experience in numerous forms of context. The role of medical expertise in the development of technology that facilitated the experiential exchanges around which the project was structured generally found favour with the individuals with visual impairment who were involved in the project.

Secondly, the individualised approach to art access employed in the project was primarily justified to participants in relation to the fact that since the inception of art access for people with visual impairment, these initiatives have been criticised for being predicated on the inaccurate and distinctly unhelpful assumption that all gallery visitors with visual impairment see nothing at all (see Kenny 1983; Steiner 1983). This is partly because gallery professionals do not typically have a very detailed or

comprehensive understanding of the practical impact of visual impairment. In the absence of such understanding, they have little choice but to proceed according to the general assumption that people with visual impairment see little or nothing. The use of simulation software affords gallery professionals an understanding that could traditionally be relayed only in terms of a series of ophthalmological measurements that would be impenetrable to most people outside the medical profession. The suggestion here is not that visual impairment is in any way reducible to such measurements, but merely that the partial experiential understanding afforded by simulation affords opportunities for art access sessions to become a reciprocal experiential exchange, rather than the one-directional and authoritative transmission of knowledge. It was also suggested during the orientation briefings that the individualized approach applied to the simulation of images might also be in keeping with the inherently subjective nature of art appreciation.

The impossibility of disability simulation

Finally, at the orientation session, it was made clear to all participants that our activities were being developed and delivered within an unreserved agreement with French's (1992) observation that disability simulation is impossible. Clearly, the idea that a fully sighted person might be able to 'step into' a state of thorough familiarity with phenomenological aspects of the lived experience of visual impairment after an extremely brief and isolated spell of deliberately and selectively impeded vision is absurd. It was made clear to participants that the simulation of how paintings were perceived by gallery visitors with visual impairments merely represented an attempt to bring fully sighted members of gallery access staff somewhat closer to understanding what individuals with varying levels of visual acuity and contrast sensitivity perceive when standing a specified distance from a series of pre-selected paintings. With these very modest objectives in mind, all participants in the project -visually impaired and fully sighted alike- proceeded to investigate whether this particular application of simulation software might enhance gallery experiences by facilitating more meaningful forms of experiential exchange than would otherwise be possible.

Findings

The indicators of aesthetic experience selected for comparative purposes are listed below together with quantified accounts of the impact of simulation on each indicator (see Table 1).

Table 1.
Indicators of aesthetic engagement with and without the application of Sight-Sim™

Component of Aesthetic Engagement	More engaged when Sight-Sim™ was used	Less engaged when Sight-Sim™ was used	No difference when Sight-Sim™ was used	Overall difference per indicator
General Engagement	42%	34%	24%	+ 8%
Level of Enjoyment	48%	35%	17%	+ 13%
Capacity for Perception of Detail	48%	21%	31%	+ 27%
Capacity for Perception of Artistic Skill	48%	38%	14%	+ 10%
Levels of Emotional Investment	52%	31%	17%	+ 21%
Extent to which the Emotion was Identified as relating to the Image (rather than to the description)	54%	19%	27%	+ 35%
Capacity for Appreciation of Expressiveness	59%	20.5%	20.5%	+ 38.5%
Capacity for Appreciating the Originality of the Painting	50%	28.5%	21.5%	+ 21.5%
General Impact	59%	15%	26%	+ 44%
Impact as a Unified Whole	68%	18%	14%	+ 50%
Percentage of participants whose perceived levels of activity in the art engagement process increased when access was structured around their perception				72%

In each of the 10 sub-categories of aesthetic engagement studied, participants experienced an overall increase in engagement when access was structured around what they perceived rather than what was perceived by their fully sighted access facilitator. The greatest increase was 50% (perception of the impact of the image as a unified whole), while the smallest increase was 8% (level of enjoyment). The average increase among all indicators of aesthetic engagement was 26.8%. The number of participants who experienced an overall increase in engagement levels with the use of Sight-Sim™ exceeded the number of those who experienced a decrease in engagement

levels by 34.7%. The average size of increase was also marginally greater than the average decrease (3.194/10 versus 3.0495/10). Participants were also asked about shifts in their perceived activity levels when access provision was structured around their perception rather than that of their fully sighted access facilitator. 72% of participants attested to a perceived rise in activity levels. 94.5% of this group regarded the increased activity levels as a positive development.

Comments on findings

The opportunity afforded by the software to address assumptions that have traditionally been made about what gallery visitors with visual impairment see when standing in front of paintings is one of the more directly identifiable benefits to have been derived from this trial of disability simulation within a gallery context. The capacity of the verbal descriptions to do justice to the impact of which art is capable is a contested issue, and one that I have written about elsewhere (Feeney 2007). The issue is too complex to attempt to resolve here, but it would seem likely that the potential for words to facilitate meaningful aesthetic experiences in such a context is impeded in cases where the words have a very tenuous relation to what visitors with visual impairment actually perceive. Having, initially against my better judgment, trialled an innovative approach to disability simulation, I would argue that the particular approach described here can be of significant value within an art access context. This value has very little to do with the apologies for simulation that one finds in the literature. The value derived from the particular application of simulation described here can be outlined in relation to four distinct but interrelated factors.

The experiential buttressing of constructivist rhetoric within an art access context

In recent decades museums and galleries have departed from the traditional paradigm of the transmission of specialist knowledge and expertise and embraced approaches designed to foreground the experience of the visitor (Deeth 2012). The role of the gallery visitor in the construction of knowledge and meaning within that environment was a central tenet, for example, of *Lifelong Museum Learning: A European Handbook* (Gibbs et al. 2007), a product of the Socrates Grundtvig Programme, a European Union initiative that has had a significant bearing on the nature of subsequent access and widening participation initiatives within the museum and gallery domain. Aligned with the principles of constructivist pedagogy, the approaches endorsed within these guidelines validate the role of the learner in the processes of knowledge construction and the identification of meaning in the course of engagement with environments and subject matter. Within the museum and gallery domain, constructivism has been advocated most influentially by George Hein (1991, 1995, 1998, 2004). Hein accounts

for the rationale underpinning constructivism in terms of the freedom it affords to gallery visitors (or learners in general) to “make meaning,” and “construct concepts” by “convert[ing] sensory input (what we see, hear, feel, and so on) into meaning” (Hein 2004: n. p). Hein’s prefacing of this emphasis on meaning making with the avowal that learning is an “active process” (*ibid*) reaffirms the significance of the fact that almost three quarters of the individuals with visual impairment who partook in simulation-based access activities briefly outlined above reported to have felt more actively involved in the process of art engagement, and that almost all of these regarded this as a positive development.

The move away from traditional notions of art education that involved the transmission of knowledge, and the cultivation of ‘good’ taste by an art expert is reflected in Hein’s further caveat that the meaning that is made within constructivist pedagogy, and the interpretations of experience that it generates, are valid even in cases where they are at direct odds with the prevailing thrust of professional consensus. Although contemporary art access initiatives are generally conceived of as conforming to the principles of constructivism, the very fact that knowledge is imparted to gallery visitors with visual impairment on the terms of a fully sighted guide would appear to implicitly privilege the dictats of received consensus, and to assume a sovereignty of fully sighted perspectives. Of the several principles underpinning Hein’s approach to art engagement, his acknowledgment of the validity of multiple learning modalities might be enlarged upon in light of the findings of the current research. The use of simulation within this project illustrated the largely neglected significance of intramodal gradations in relation to art appreciation. In the case of the provision of access to visual art for gallery visitors with visual impairments, the privileging of the perceptions of the fully sighted guide, compounded by the ill-informed assumption that all individuals with visual impairment see nothing, amounts to a discounting of the very experiences that are purportedly being attended to.

According to Hein, there is ‘no other kind’ of learning but the construction of meaning. Accepting this entails acknowledging that “there is no knowledge independent of the meaning attributed to experience (constructed) by the learner” (Hein 1991: n.p.). However, the nature of this attribution would appear to be questionable in cases where the foundation of the construction in question is the experience of a fully sighted member of gallery staff, rather than that of the gallery visitor whose experience is surely central. If learning, as Hein goes on to suggest, is a personal construction of meaning out of an array of sensations (*ibid.*), surely the sensations in question should be one’s own. Otherwise, it becomes difficult to conceive of how the constructed meaning might have any form of direct bearing on personal engagement with the objects or environments in question.

De-ghosting the aesthetic experiences of individuals with visual impairments

The particular consequence of such overlooking of experiential components of aesthetic engagement focused on here manifests itself as a form of deputed or delegated agency. By means of this circumlocutory involvement, individuals with visual impairment in art access contexts are often expected to content themselves with forms of ‘aesthetic pleasure’ that are derived by proxy, rather than as a result of direct engagement with artworks. In this way, an art access provider generally serves as a procurator, whose function in structuring the art engagement of others around his/her perception might be described as undergoing aesthetic experiences on behalf of another. With Mitias’s description of aesthetic agency in mind, this can be likened to the ‘ghost-authorship’ of aesthetic experience - a process akin to that of ghost-writing, whereby a person is employed to author a text that is officially accredited to another individual. The application of simulation software to the task of structuring art access around the perceptions of gallery visitors with visual impairment serves as an admittedly imperfect corrective to such surrogate forms of aesthetic engagement. It is described here as part of an attempted ‘de-ventriloquisation’ of art access, undertaken as an attempt to render the reception of aesthetic values that are generally afforded to gallery visitors with visual impairment more personally meaningful experiences. The application of the simulation software, that is to say, allows gallery visitors with visual impairment to be the authors of their own aesthetic experiences, rather than having these experiences authored by individuals whose perceptions are invariably at a considerable remove from those of the visitors themselves.

Rescinding the privilege of the gallery docent

This imposition of fully-sighted perspectives on the gallery experiences of individuals with visual impairment is symptomatic of the types of power imbalance that many authors have identified as characterising often well-meaning interventions within the domain of disability research and practice (see, for example, Oliver 1992; Tregaskis 2004).² The approach to art access outlined here might also be related to Bob Pease’s (2010) account of the problematic ways in which many members of privileged groups align themselves with the experiences and ‘needs’ of groups who are marginalized and oppressed. For all of the uncontested limitations of disability simulation outlined above, I would argue that the application of Sight-sim™ within a gallery environment can at least hint towards a resolution of some of the tensions astutely identified by Pease. The structuring of art access around the perceptions of visitors with visual impairment can contribute to the resolution of a number of difficult issues, such as: a) how fully-sighted gallery staff members might develop a meaningful conception of the privilege their eyesight affords them within a visual art context, b) how they might begin to challenge the conventions upon which their perceived advantage over the groups whose welfare

they advocate is premised, and c) how meaningful alliances between these groups might be forged within a genuinely co-constructivist framework.

Reconceptualising aesthetic literacies

Another aspect of the potential of simulation within a gallery environment relates to the reversal of the process of cultivating aesthetic literacy, as this process has traditionally been conceived and practiced. The existing literature is diverse and varied (see, for example, Hamblen 1986; Parsons 1990), but a quality that most renderings of the process have in common is the conception of the cultivation of literacy as a unilateral process of transmission. Aesthetic value is explained by one who has a heightened appreciation of its 'proper' currency to those accustomed to trading in less refined spheres of value and modes of exchange. A related element of the value derived from the application of simulation within the current project is allied with its potential to address a grievance that recurs through many personal accounts of the experience of disability.

It can be related, for example, to Jim Sinclair's (1993: n. p.) plea to parents of autistic children that the effort to relate is not the sole responsibility of the child. The mistake such parents tend to make, according to Sinclair, is in "assuming a shared system, a shared understanding of signals and meanings that the child in fact does not share".

You're going to have to give up on the certainty that comes of being on your own familiar territory, of knowing you're in charge, and let your child teach you a little of her language, guide you a little way into his world (Sinclair 1993: n. p.).

Sinclair assures non-autistic parents that relating to their autistic children can be accomplished - "unless non-autistic people are far more limited than we are in their capacity to relate" (1993: 2). Once non-autistic parents understand that there is more to communication than expecting their autistic children to communicate on non-autistic terms, "you'll find a world you could never have imagined" (ibid). In a similar spirit, Jenny Morris (1991) collaborated with a number of disabled women to compile a list of assumptions commonly made by non-disabled people about the experiences of disabled people. Among these assumptions are the contentions that "our only true scale of merit and success is to judge ourselves by the standards of their world"; that disabled people crave "normalcy"; and that nothing is to be gained from the experience of disability (Morris 1991: 11-13). The potential, afforded by simulation, for fully sighted members of gallery access teams to make an informed effort to relate to visitors with visual impairment -on the terms of these visitors rather than on their own- seems to me to signal a promising, if imperfect, development within the domain of art access.

The direction in which descriptions tend to be transmitted in art access sessions, however, suggests that the question of how paintings are perceived by visitors with

visual impairment holds little interest for gallery staff. The implicit assumption would appear to be that even in cases in which it is accepted that these visitors actually see something, what they do perceive is characterized by levels of vagueness, ambiguity and imprecision that detracts entirely from the painting's inherent aesthetic worth. This appears to be the case despite the fact that art theorists, such as Robert Pepperell (2006) and Dario Gamboni (2002), have established the aesthetic relevance of visual indeterminacy - a perceptual state in which subjects fail to recognize objects from visual cues. This phenomenon is of great significance within the history of art, which is replete with examples of artists who exploit this phenomenon for artistic effect. Pepperell has defined the perceptual phenomenon of visual indeterminacy as that which occurs when a viewer is presented with an ostensibly meaningful visual stimulus that denies easy or immediate identification (Pepperell 2006: 394). The experience is characterized by the suggestion of present objects but the denial or frustration of immediate recognition. Pepperell's descriptions tally closely with the degraded iterations of original paintings generated by Sight-sim™. Yet the potential for aesthetic engagement and experiential exchange inherent in these perceptions remains largely untapped within the domain of art access.

Concluding thoughts

Underpinning the assertions that have been volunteered here is a firm belief in the idea that because values are derived from experience, 'value,' or 'meaning,' or whatever term we choose to allocate to the yield of aesthetic experience, cannot be meaningfully explored in isolation from the direct experience of that value. Ralph Alexander Smith's (1989) observation that value is a property attributed to an object by virtue of its relationship with a sensibility is worth keeping in mind when attempting to force the aesthetic engagement of individuals with visual impairment into contrived alignment with the sensibilities of their fully sighted guides. "Successful communication", Jonathan Osborne (1998) reminds us, "occurs when each party understands the point of view of the other," adding that

constructivist writings offer a body of literature that helps to sensitize the museum educator to the common perceptions and understandings of the learner (Osborne 1998: 9).

Implicit in the structuring art access around what is perceived by a fully sighted guide, however, is the assumption that such perception is the source of the authoritative narrative of the understanding that is placed at the disposal of gallery visitors with visual impairments. In a similar spirit, Danielle Rice has suggested that constructivism has bequeathed to art galleries an appreciation of their responsibility to "construct consensual meanings" while individuals "construct personal ones" (Rice 1998: 10). The

concept of consensus, however, would appear to have little purchase within a pedagogical domain in which information is relayed only in a manner that is at odds with the receptive capacities and sensory configuration of the learner. Such ghost-authorship of the aesthetic experiences of gallery visitors with visual impairment would appear to diminish the possibility of the emergence of values that can in any meaningful sense of the term, be said to be personal to the learner.

In order to facilitate the emergence of such personal forms of meaning, thereby becoming more meaningfully aligned with the principles of constructivist learning, gallery access teams would do well to heed the recommendation of James Winchester, volunteered in a distinct, but not entirely unrelated context, that aesthetic understanding across cultural divides requires sustained sensitive attention to the worlds out of which the sensibilities in question emerge. Winchester's subsequent recommendation that we "will not understand very much at all if we do not leave behind our presumptions of superior knowledge" (Winchester 2000: 499) is one to which fully sighted museum and gallery guides should mindfully attend. The particular approach described above, where gallery visitors are encouraged to author their own aesthetic experiences, and to share them with fully sighted members of gallery staff as part of a collaborative process of meaning making, would appear to suggest that when undertaken in a well-considered manner, simulation, for all of the hyperbolic and ill-informed claims that have been made on its behalf, and for all of the well-founded criticism it has historically attracted, is capable of applying at least a partial corrective to a regrettable miss-application of the principles of constructivist learning.

References

- Brendemeier, M.E. & Greenblat, C.S. (1981). "The educational effectiveness of simulation games: A synthesis of findings", *Simulation and Gaming*, 12, 307-332.
- Burgstahler, S. (2002). "Accommodating students with disabilities: Professional development needs of faculty", *To Improve the Academy: Resources for Faculty, Instructional, and Organisational Development*, 21, 181-183.
- Burgstahler, S. & Doe, T. (2004). "Disability-related simulations: If, when, and how to use them", *Review of Disability Studies*, 1(2), 4-17.

- Chard, G. (1997). "Should occupational therapists use simulation exercises? Using wheelchair training as an example", *British Journal of Occupational Therapy*, 60, 161-166.
- Clark, R.A., Ferziger, J.H & Reynolds, W.C. (1979). "Evaluation of subgrid-scale models using an accurately simulated turbulent flow", *Journal of Fluid Mechanics*, 91(1), 1-16.
- Deeth, J. (2012). "Engaging strangeness in the art museum: An audience development strategy", *Museum & Society*, 10(1), 1-14.
- Donaldson, J. (1980). "Changing attitudes toward handicapped persons: A review and analysis of research", *Exceptional Children*, 46, 504-514.
- Feeney, D. (2007). *Toward an Aesthetics of Blindness: An interdisciplinary response to Synge, Yeats and Friel*. New York: Peter Lang.
- Finkelstein, V. (1991). "It is insulting to trivialise disability", *Therapy Weekly*, 17(25), 5.
- French, S. (1992). "Simulation exercise in disability awareness training: A critique", *Disability, Handicap & Society*, 7(2), 226-247.
- Gamboni, D. (2002). *Potential Images: Ambiguity and indeterminacy in modern art*. London: Reaktion Books.
- Gibbs, K, Sani, M. & Thompson, J. (Eds.) (2007). *Lifelong Learning in Museums: A European handbook*. Ferrara (Italy): EDISAI srl.
- Glazzard, P. (1979). "Simulation of handicaps as a teaching strategy for preservice and inservice training", *Teaching Exceptional Children*, 11, 101-104.
- Grayson, E. & Marini, I. (1996). "Simulated disability exercises and their impact on attitudes toward persons with disabilities", *International Journal of Rehabilitation Research*, 19, 123-131.
- Hamblen, K.A. (1986). "Exploring contested concepts for aesthetic literacy", *Journal of Aesthetic Education*, 20(2), 67-76.
- Hein, G.E. (2004). "The role of museums in society: Education and social action". Retrieved 1.6.2017 from:
<http://george-hein.com/downloads/roleMuseumsSocietyForum.pdf>
- Hein, G.E. (1998). *Learning in the Museum*. London: Routledge.
- Hein, G.E. (1995). "The constructivist museum", *Journal for Education in Museums*, 16, 21-23.
- Hein, G.E. (1991). "Constructivist learning theory". Paper presented at CECA conference The Museum and the Needs of the People, Jerusalem. Retrieved 1.6.2017 from: www.exploratorium.edu/education/ifi/constructivist-learning
- Herbert, J. (2000). "Simulation as a learning method to facilitate disability awareness", *Journal of Experiential Education*, 23(1) 5-11.
- Hunter, M. & Clark, R.E. (1977). "Simulation gaming research", *Educational Technology*, 17, 44-46.

- Hyman, R.T. (1978). *Simulation Gaming for Values Education: The prisoner's dilemma*. New Brunswick, N.J.: University Press of America.
- Jones, S.R. (1996). "Toward inclusive theory: Disability as social construction", *NASPA Journal*, 33, 347-354.
- Kenny, A.P. (1983). "A range of vision. Museum accommodation for visually impaired people", *Journal of Visual Impairment & Blindness*, 77(7), 325-329.
- Kiger, G. (1992). "Disability simulations: Logical, methodological and ethical issues", *Disability, Handicap & Society*, 7, 71-78.
- Kosciulek, J.F. & Szymanski, E.M. (1993). "Statistical power analysis of rehabilitation counseling research", *Rehabilitation Counseling Bulletin*, 36, 212-219.
- Leo, J. & Goodwin, D.L. (2013). "Pedagogical reflections on the use of disability simulations in higher education", *Journal of Teaching in Physical Education*, 32, 460-472.
- Leyser, Y., Yogel, S., Wyland, S. & Brulle, A. (1998). "Faculty attitudes and practices regarding students with disabilities: Two decades after implementation of Section 504", *Journal of Pre-secondary Education & Disability*, 13(3), 5-19.
- Marini, I., Rogers, L., Slate, J. & Vines, C. (1995). "Self-esteem differences among persons with spinal cord injury", *Rehabilitation Counselling Bulletin*, 38, 198-206.
- Mitias, M.H. (1982). "What makes a situation aesthetic?", *Journal of Aesthetics and Art Criticism*, 41(2), 157-169.
- Morris, J. (1991). *Pride against Prejudice: Transforming attitudes to disability*. London: The Women's Press.
- Oliver, M. (1992). "Changing the social relations of research production", *Disability, Handicap & Society*, 7(2), 101-114.
- Oliver, M. & Barnes, C. (1998). *Disabled People and Social Policy: From exclusion to inclusion*. Essex: Addison Wesley Longman.
- Orlansky, M.D. (1979). "Active learning and student attitudes toward exceptional children", *Exceptional Children*, 46, 49-52.
- Osborne, J.F. (1998). "Constructivism in museums: A response", *The Journal of Museum Education*, 23(1), 8-9.
- Parsons, M.J. (1990). "Aesthetic literacy: The psychological context", *Journal of Aesthetic Education*, 24(1), 135-146.
- Patterson, P.E. (1980). "Simulations in therapeutic recreation training programs", *Therapeutic Recreation Journal*, 14, 15-20.
- Pease, B. (2010). *Undoing Privilege: Unearned advantage in a divided world*. New York: Zed Books.
- Pepperell, R. (2006). "Seeing without objects: Visual indeterminacy and art", *Leonardo* 39(5), 394-400.

- Pernice, R. & Lys, K. (1996). "Interventions for attitude change towards people with disabilities. How successful are they?", *International Journal of Rehabilitation Research*, 19, 171-174.
- Pfeiffer, D. (1989). "Disability simulation using a wheelchair exercise", *Journal of Post-Secondary Education & Disability*, 7, 171-174.
- Price, K. (1979). "What makes a situation aesthetic", *British Journal of Aesthetics*, 19, 131-143.
- Randel, J., Morris, B., Wetzel, C.D. & Whitehill, B. (1992). "The effectiveness of games for educational purposes: A review of recent research", *Simulations & Gaming*, 23(3), 261-276.
- Reynolds, R. (1991). "Revenge of the wheelchair users", *Disability Now*, (August), 5.
- Rice, D. (1989). "Constructing informed practice", *The Journal of Museum Education*, 23(1), 10-11.
- Richardson, M. (1990). "Disabled for a day", *Nursing Times*, 86(21), 66-69.
- Schwartzwald, F.R. (1981). "A study of the effect of cognitive and effective intervention on attitudes of upper elementary children toward physically disabled children", *Dissertation Abstracts International*, AI-A 42/04, 1593.
- Scullion, P. (1996). "'Quasidisability' experiences using simulation", *British Journal of Therapy & Simulation*, 3, 498-502.
- Sinclair, J. (1993). "Don't mourn for us" *Autism Network International Newsletter, Our Voice*, 1(3). Retrieved 7.6.2017 from: http://www.autreat.com/dont_mourn.html
- Smith, R.A. (1989). *The Sense of Art: A study in aesthetic education*. New York: Routledge.
- Steiner, C. (1983). "Art museums and the visually handicapped consumer: Some issues in approach and design", *Journal of Visual Impairment & Blindness*, 77(7), 330-333.
- Swain, J. & Lawrence, P. (1994). Learning about disability: Changing attitudes or challenging understanding? In S. French, (Ed.), *On Equal Terms: Working with disabled people* (p. 87-102). Oxford: Butterworth Heinemann.
- Tate, D.G., Kewman, D.G. & Maynard, F. (1990). "The brief symptom inventory: Measuring psychological distress in spinal cord injuries", *Rehabilitation Psychology*, 35, 211-216.
- Thatcher, D.C. & Robinson, M.J. (1990). "Me - The slow learner: Reflections eight years on from its original design", *Simulation & Gaming*, 21(3), 291-302.
- Thompson, A., Bethea, L. & Turner, J. (1997). "Faculty knowledge of disability laws in high school education: A survey", *Rehabilitation Counselling Bulletin*, 40, 166-180.

- Tregaskis, C. (2004). Social model theories and non-disabled people: Some possibilities for connection. In C. Barnes & G. Mercer (Eds.), *Implementing the Social Model of Disability: Theory and research* (p. 65-82). Leeds: The Disability Press.
- Vehmas, S. & Mäkelä, P. (2008). "A realist account of the ontology of impairment", *Journal of Medical Ethics*, 34, 93-95.
- Wiener, W.R. (1986). "The differential effects of simulation levels and coping skills on attitudes toward blind persons", *Dissertation Abstracts International*, 47(02), 206.
- Wilson, E.D. & Alcorn, D. (1969). "Disability simulation and development of attitudes toward the exceptional", *Journal of Special Education*, 3, 303-307.
- Winchester, J.J. (2000). "Understanding aesthetic judgments across cultural borders: Bell hooks, Kant, and Cornel West and the understanding of aesthetic judgments of others", *The Southern Journal of Philosophy*, Vol. XXXVIII, 499-525.
- Wright, B.A. (1978). "The coping framework and attitude change: A guide to constructive role playing", *Rehabilitation Psychology*, 25, 177-183.
- Wright, B.A. (1980). "Developing constructive views of a life with a disability", *Rehabilitation Literature*, 41, 274-279.
- Wurst, S.A. & Wolford, K. (1994). "Integrating disability awareness into psychology courses: Applications in abnormal psychology and perception", *Teaching of Psychology*, 21, 233-235.

Σημειώσεις

¹ For more information about this software, see www.sight-sim.co.uk

² Of course, the research outlined here is open to similar lines of critical response.