

Virtually relevant: AR/VR and the theatre

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Abstract

The relevance of the embodied actor and theatre maker is potentially tested alongside advances and emergences in performative technology, specifically Augmented and Virtual Reality (AR and VR). However, the general notion emerging amongst theorists, practitioners and academics seems to be favouring an evolutionary collaboration between these somewhat disparate disciplines: the former emerging from and refined over thousands of years of artistic development, the latter finding its more recent birth in entertainment and gaming. Rather than a consumption of art in a gamification of storytelling through emergent technologies, it is argued that tools of AR and VR will soon be used to enhance live, embodied narrative through dramatic storytelling and together these forms will generate a new style and technique of immersive theatre that takes artists and makers to the next stage of human creativity. Relevance, then, will be ensured through the consideration of the audience and their place in the theatrical event, as well as through up- and re-skilling of theatre makers, performers and actors in this technology in order to democratise its usefulness. Theatre's long and proud history of subsuming emergent technologies for its own purposes also provides a blueprint for adoption of these future technologies. There are also significant and important opportunities for applied theatre and socially engaged arts practice to incorporate the technology into its forms, particularly in support of new and experimental research in healthcare. The current limitations of AR/VR on the dramatic stage are undeniable, yet by focusing on the experiential and communal nature of theatre the technology and the art can be reconciled into a new and innovative expression in the theatre arts. This new age of making should begin in the conservatory and academy for multiple reasons but will eventually spread to independent artists. The technician and theatre maker will combine, enabling a future for the stage that we cannot yet envisage.

Keywords

Virtual Reality; Augmented Reality; Theatre; Performance; Drama; Practice-led Research

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AR/VR: The natural progression of intermediality in performance

Theatre is no stranger to inter- and multi- form collaborations in creating hybrid works of art. Since the Ancient Greek's – and likely before – dramatic performance has combined technologies, artforms and creative ideologies to generate works that incorporate and excite the full spectrum of human creativity. Dance and movement choreography, singing and music, poetry and prose, visual and materials design have always been found on the theatrical stage. As technologies have evolved so too have they found their way into the theatre, as it inherently and seamlessly incorporates developments in stage and set construction, lighting and sound effects, multimedia and even pyrotechnics that heighten the audience experience and deepen the theatrical world, contributing to the narrative spectacle and enlivening opportunities for audience immersion.

Keeping with theatrical tradition – borrowing and utilising elements from multiple forms – theatre's experiments with AR and VR technology are likely to evolve into permanent accoutrements within the dramaturgical toolkit. A key aim of employing this technology in theatre is to further the potential of dramatic performance in becoming an immersive space. Rose Biggin articulates this development in the book *Immersive Theatre and Audience Experience* (2017), notably detailing the connection between the term “immersive” and its roots in VR technology (21). Biggin also articulates a clear “distinction between a form of theatre and the experience that may be facilitated by that form of theatre” (22), which is an important distinction given that, in true theatrical style, while the idea of audience immersion is rooted in VR technology, performance makers have long understood this notion for the stage and regularly create immersive works that are entirely void of any kind of AR or VR technology. The immersivity in these works is achieved through a variety of other techniques that may include aural soundscapes, mobile performances that move between highly designed rooms/venues, or invisible-theatre inspired works that make it near impossible for onlookers to differentiate between the performance and the public space.

Interestingly, Biggin also indicates that the idea of immersion through AR/VR has made its way to the theatre via museum instillations, ultimately resulting in an understanding of immersion where “one feels enveloped in immersive spaces and strangely affected by a strong sense of the otherness of the virtual world one has entered, neither fully lost in the experience nor completely in the here and now” (Griffiths in Biggin 21). This is another critical difference in the aims and impact of immersivity, achieved through AR and/or VR technology, found to exist between theatre and gaming. It is arguable that gaming lends itself more likely to desire complete immersion where the participant/player can escape into the designed world of the technology and away from their very real, ordinarily embodied environment. Conversely, theatre has at its core the element of a shared experience and the connection between physical bodies that occurs between audience members and between performer and audience. With ancient ties to ritual and ceremony, it is

generally accepted that the community aspect of live dramatic performance is a very substantial part of its appeal and where its power to reflect and change society is situated.

With this in mind, it is more desirable and likely that AR/VR technology will become a part of theatre and performance in a way that supplements and builds on the very ancient traditions of dramatic storytelling. It is less likely and not as desirable that the technology will fundamentally change the form(at) of theatre and subsume the artform itself, just as film, television and other mediated expressions lent themselves to intermediality in performance, rather than fundamentally replacing performance. It is defensible to suggest these developments in technology and entertainment have been consistently subsumed and manipulated by performance, for theatre's own end, not the other way around. With this understanding, it is easy to see that AR/VR technology may simply be the early 21st century iteration of multimedia in performance.

Piscator: Theatre's past predicts its future

The idea that theatre uses developments and advancements in other areas as tools for its own end is not a new one. In 1929, dramatist and director Erwin Piscator explained the usefulness of film to extend the subject matter and scope of his plays (See Sheldrake 11). Importantly, Piscator is proven to have used the technology and novelty that film brought to enhance the theatrical, rather than replace it. As Pauline Sheldrake writes, "multimedia elements of projections and film in these performances [of Piscator's] expanded the fictional space by illuminating previously passive spaces into the presentational and fictional space" (11).

In a similar vein, the increasing interest in AR/VR technology by theatre and performance makers is also aimed at expanding the fictional world of dramatic narrative and activating traditionally passive elements of the theatrical experience. While Piscator was concerned with the element of space and how it could be enlivened and activated by film, it is arguable that AR/VR's genesis in gaming is concerned with the activation of the player/participant who is encouraged to enter (immerse themselves) into a virtual world, even when that world is layered on top of reality. Following Piscator's lead, those in theatre may find it more fruitful to utilise the technology to activate space and not only the bodies within the space, whereby the audience will become an indelible participant. This way, the virtual world is opened up to the community of theatre, rather than taking individuals from that community and narrowing their field of vision and experience to their own limited involvement in a smaller, screen-sized digital world.

Piscator understood the eclectic traditions and nature of drama. His works combined the emerging innovations of film and projection at the time with accompanying advancements in mechanical engineering and hydraulic devices, fusing elements of each with developing technologies in both optics and acoustics. Combined, this gave theatre the beginnings of what came to be known as total theatre, "a term derived from Richard Wagner's concept of a Gesamtkunstwerk: a total or unified work of art, in which all elements – music, voice, movement and spectacle – work together for a

complete and harmonious effect” (Carlson). This understanding of theatre as “Gesamtkunstwerk” will also be critical for the successful consumption of AR/VR technology by theatre audiences and makers alike. Theatre is experiential and anything that enhances/evolves that experience, as opposed to denying it, by complementing existing theatrical traditions is likely to benefit the artwork and form overall.

On the other hand, elements that dilute or too radically alter the fundamental experience of the theatre, working independently or even against the central function of the work, run the risk of alienating audiences and losing appeal. Where an AR/VR game can be played in isolation, fundamentally theatre cannot. While games such as Pokémon Go may be seen to take an individual’s gameplay and bring them out into a community in which they can interact in real time, each individual is still on a quest as part of their own adventure. A theatre audience should be encouraged to have a shared experience – that is what elevates the form into art and enables the experience of both individual and communal catharsis, an ultimate requirement for dramatic narrative overall.

Audience: The key to success

Ultimately, it will be how the artist/creator treats and positions the audience within and alongside this technology that will decide its success in the theatre. As Iryna Kuksa and Mark Childs confirm, “traditionally, live performing arts combine different media elements and support interaction and connection between the audience and the stage. In an historical sense, artists have always used impressive immersion tricks, such as physical surroundings with fake perspective, panoramic views or fresco images, to immerse the viewer in illusory reality” (51). The key to a successful combination of forms, then, is in the function of supporting the interaction and connection between the audience and the onstage action. The effects provided by AR/VR must work *with* the traditional elements of theatrical narrative to enrich and enhance the audience experience, and not simply be viewed as a tool for the artist in articulating their vision. The technology must exist for the audience in the pursuit of enriching and enlivening their experience, and not for its own sake, nor solely the artform’s sake itself. At the forefront of all of this must be the consideration of the audience’s experience.

In the book, *Audience as Performer*, Caroline Heim discusses in depth the historical and changing nature of theatre’s audiences. Notably, Heim categorises audiences into several roles within the performative event, stating “the role of the audience that is discussed most often in theatre studies is audience as audience... [however] other roles... include audience as critic, community, consumer and co-creator” (24). It is conceivable that advances in AR/VR coupled with artificial intelligence (AI) will take audience as co-creator to the extreme, where digitally embedded elements within the performance can interact with and respond to live audience input and reactions. This may work in much the same way as traditional performer-audience interactions work, interactions dependent in what Heim articulates as the “liminal space between the auditorium and the stage [where] there is a phenomenon that occurs that charges the air with electricity so visceral that audience and actors alike often gasp in awe at the sheer wonder of it” (145). This electricity inherently impacts the performer and

audience alike, in real time, influencing not only each's reaction to the moment but also how the production plays out from that point on. The shared experience that comes from the liveness of theatre means that every performance is unique – no two instances of the same production can ever be the same when there is an audience involved. The question will be, then, what happens to this interaction when elements of pre-recorded and pre-designed technology are introduced onto the stage? What is the impact of AR/VR – eventually also infused with AI – on Heim's very real, very live and very embodied "electricity"?

The answer will be, again, in the how the theatrical embeds the digital into its already immersive traditions, from the point of view of the audience. Indeed, given that "any theatre environment is already a virtual space" (Kuksa and Childs 54) the ability for the stage to influence and be influenced by the moment is already clear and future developments in AI will serve only to reconfirm this existing phenomenon. In terms of the potential for this technology to completely remove the need for actual living performers, in favour of a purely digital experience, this is always a possibility but I think unlikely. Just as film and television did not replace live actors on the stage with pre-recorded projections on a screen the theatre is most likely to maintain its strong traditions of adopting technology to enhance its practical and poetic functions, rather than be replaced by it.

Theatre as total artwork: Social interaction is key

A key aspect of theatre's success as Gesamtkunstwerk is how the audience connects with the immersiveness that such total-art allows, but this connection must be a shared experience in order for the interaction to be truly theatrical. While AR/VR gaming is continuously attempting to improve the social inclusion aspects of the technology, "even with the release of a number of different social apps for VR, social interaction still feels like VR's missing feature" (Mealy 258). Theatre inherently provides the antidote to this: its very existence facilitating a social, shared experience. This technology in theatre, then, adds to its totality and makes the event overall about the experience, rather than the objectives of a game. This fact encourages the artform to resist mere gamification, supporting the likely subsuming of the tech in a more holistic way. Theatre takes the virtual connections beyond the current solutions of gaming, where social interaction is forced by bringing multiple players into the same scenario either through their collective characters inhabiting the same virtual space or by allowing the players to talk or text with and to each other. This kind of interaction can be argued to differentiate the players and their real worlds from the "communal" digital as the interaction is additional to the virtual experience. The interaction in theatre, however, is an integral part of the experience.

With this in mind, "social interaction and communication will be an important factor affecting the future of VR. Although headset manufacturers can find ways to encourage this interaction among users both co-located and far away, they won't [sic] be able to solve the problem alone" (260). While author and technologist Paul Mealy declares app developers will need to be the ones that help device manufacturers solve the problems of existing technology around social interaction, artists and theatre makers may also be

able to play a key role here. It is fine for technicians and developers to generate products that include interactivity as part of their platform, but the adoption and consumption of these products by users does not naturally follow. Mealy confirms that “the true transformative nature of VR is based on just how immersive an experience it can provide” (254) and it is the transformative nature that largely decides the uptake of the technology by the general public. This creates a potentially significant problem for the technology’s evolution:

Everyday consumers may find themselves waiting for the most immersive VR headsets to come down in cost. Content creators, meanwhile, are waiting for the most immersive VR headsets to establish a larger audience base. This can create a feedback loop: The high-end devices have a smaller market share of users, which leads to fewer applications being developed for the high end, leading to a smaller market share of users. The loop can be tricky to escape. (254)

For theatre, this is less of a problem. A single example of the technology can reach multiple audience members at a time. This may not be appealing to manufacturers of the technology, who presumably desire every individual to purchase a device and/or app multiple times over their lifetime in order to generate demand and therefore profits; however, there is currently potential for a developers and artists in a yet-to-be-realised live performance market. While every household must purchase lightbulbs, the manufacturers who produce the specific lamps, bulbs, desks and racks that performance venues use are quite another thing. I predict – with the increasing usefulness and advancements of 3D projectors, movable and robotic screens and the user-friendliness of animation and programming apps – there will come a specific market for AR/VR technologies in the live performance space. Again, the theatre will not be consumed by gaming and its commercial imperatives but will open up the technology to its long history of audience-centred, experiential narrative based on social interactions.

Potential in non-commercial theatre

In *Virtual, Augmented Reality and Serious Games for Healthcare 1* (Ma et al.), the editors have gathered a great number of examples of how AR/VR technology is and has been employed in the health sector. The basis of all of these examples is the transference of the tech and its place and understanding in the world of gaming into the medical realm. With discussion on the development of haptics in and alongside the technology, as well as papers on the importance of multi-sensory considerations when applying the technology in the clinic, particularly soundscapes/tracks, there is seemingly much emphasis placed on the idea of a “total” experience and the immersive potential of AR/VR in terms of its usefulness in a therapeutic context. Putting aside the obvious connections between a “totally immersive” experience proposed by the writers in this book for healthcare and the idea of theatre as “total-art” I see a potentially greater influence for theatre to assist the technology in reaching a higher level of usefulness in this context. Specifically, forms of applied theatre are seen as likely to

benefit from this interdisciplinary evolution and provide a solid framework for continued integration.

Two obvious areas for AR/VR in healthcare is: to provide access to a virtual world that is otherwise prohibitive of those with an incapacity and prevents them from experiencing the greater environment; and the ability for the technology to be used by patients to demonstrate and express their lived experience in a virtual way through virtual characters. Through narrative, the combination of sound lighting and stage effects, and the core outcome of social immersion, theatre can heighten and fully realise a virtual world that is both enticing and cathartic for many of those with certain kinds of incapacitation or malady.

Furthermore, drawing upon techniques and theories of Theatre of the Oppressed, forum theatre and playback theatre, there is potential for AR/VR tech to combine with theatre practice in the areas of therapy and psychology. Through emerging collaborations between researchers from the Queensland University of Technology's School of Creative Practice and Institute of Health and Biomedical Innovation, the potential for digitally projected and/or augmented characters, alongside real-life performers, to assist as a therapeutic intervention is being explored. Specifically, trials involving patients exhibiting signs of alexithymia and/or displaying poor metacognitive abilities, who are undergoing psychological treatment, will experiment with AR infused applied theatre scenarios in an effort to assist them to express themselves and their lived experiences. Potentially, there are certain patients with an inability to express and explain their feelings, emotions and lived experiences who may benefit from fusing theatre and technology as part of a treatment designed to enable complex emotional and psychological expression. Through the proven catharsis of theatre and by monopolising on established methods of applied performance, the addition of AR/VR technologies provides an additional level of expressive possibility in a live performance context. It will be interesting to see the results of these experiments.

Limitations and possibilities

The limitations of AR/VR technology and its usefulness to theatre are very much the same as its limitations outside of the theatre, generally identified as the reasons behind its sometimes-slow uptake by the general public and target consumers. These have been listed as (Kuntz et al.): the limited field of vision offered by wearable devices, issues with display resolution of devices and projections, arguments and inconsistencies in the understandings of display frequency and what is best for the human eye, the immense graphical computing power required to generate the most convincing of virtual worlds, and the hindrance on mobility currently associated with devices and projections.

Some propose that the main obstacle for the uptake of AR/VR generally, however, is the difficulty “of the form in which these two worlds [real and virtual] are overlaid to give the appearance of a single world” (Casiez et al. 259). And this is also true of its usefulness to the theatrical stage. Until the technology can literally inhabit the “real” world – I predict as seamless projections/holograms of digital characters and stage

elements onstage – then the division of worlds will remain a very large reason behind a resistance to large-scale and common use in art. A device, wearable or otherwise, inherently separates users/audiences from the world they inhabit and from each other, directly conflicting with the human desire and need for connection and socialisation. While some predict imminent developments in the practicality and applicability of wearable devices and projection technology will enable a more seamless integration of technology into a desirable and immersive experience (Arnaldi et al.), it is unlikely the novelty will overcome the downfalls and it is not until one can inhabit the other to create a total and seamless experience that the true value of this technology to art can be realised.

Undeniably, there have been moments of mass-adoption and the future of AR/VR and its place in our culture and society has looked certain, specifically with the popularity of games like Pokémon Go (see: Hamari et al.). These have proven to be a flash in the pan, however, adding further weight to the belief that the best is yet to come.

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