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Theatre in the round: a study of the effectiveness of 360-degree video and VR to address critical questions in the teaching and learning of drama

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ABSTRACT

This research explored how 360-video when experienced through virtual reality (VR) might support higher education (HE) English Literature students to perceive critical issues in dramatic works. Previous research placed observers into dramatic action through 360 cameras on stage – but this can be disorienting in VR. It places viewers amid events unprecedentedly, rather than behind an imaginary fourth wall. To maximise possibilities of affective perspective-taking – which underpins classroom discussion and critical cognition – we located 360 cameras diegetically, giving viewers credible presences and enabling occupation of actor points-of-view. This allowed participants to compare points of view in the same scene, stimulating literary-critical discussion and heightening identification and engagement. Participants, however, struggled to articulate this through terminology pertinent to prior audience experience of theatre, film and televised production. The authors propose 'critically embodied spectatorship' as a means of building new conventions for talking about embodied spectatorship in 360/VR theatre, specifically in educational encounters. Limitations aside, this research finds that the positioning of a 360 camera to embody characters' points-of-view is pedagogically effective, if resource intensive. Further research is required to lessen resource implications, expand our shared vocabulary, and build upon this work through designing pedagogic activities around a critically embodied spectatorship approach.

Introduction: VR and 360-video in English literature

In English Literature classrooms, the film can help students to visualise features like stage directions that are not obvious from the page alone, and prompt discussions of aesthetic and ideological dimensions of a play-text. Might 360 filmed productions, viewed in VR, promote and enhance these outcomes in a more engaging way? While recent meta-studies suggest that 360-video may not offer significant benefits to learners from a

cognitive perspective compared to conventional instruction (Schroeder, Siegle, and Craig 2023), some evidence suggests that it can usefully expose students to affective dimensions of relevant environments: feelings such as anxiety (Stupar-Rutenfrans, Ketelaars, and van Gisbergen 2017), emotion (Hallberg, Hirsto, and Kaasinen 2020), and spatial presence (Fraustino et al. 2018) may be intensified. These affects imply value to the context of English teaching, where the empathic emotions induced by content can stimulate critical discussion (Keen 2007). Compared to conventionally filmed versions of plays, 360-video experienced through VR headsets can maintain the 'illusion of nonmediation' (Lombard and Ditton 1997) enabling viewers to exist within a play, share characters' feelings, and feel embedded within their social relationships.

This project worked with HE students linked to a Level 1 Introduction to Drama module, which forms part of an English Literature degree programme at a UK university. It aimed not merely to explore whether the use of 360-video was more immersive, technically functional, or enjoyable, but whether it is pedagogically meaningful and enables students to evaluate literary-critical issues in dramatic texts.

Use of VR and 360-video in theatre and English literature teaching

From game-like reconstructions of theatres (Kuksa and Childs 2014; Molina and Gochfeld 2017) to using VR headsets and controllers to choreograph actor-avatars (Pietroszek, Eckhardt, and Tahai 2018), there have been numerous VR innovations in theatre (Mancewicz 2024; Wiejdom 2017).

Nevertheless, challenges are manifest in incorporating even extant VR-based resources into teaching, let alone bespoke developments. Across HE, there are technical and cost barriers to uptake (Wohlgenannt et al. 2019). Where VR has become more successfully established in teaching, this has emerged in practice-based and experiential subjects, such as health sciences (Jiang et al. 2022) and archaeology (Pettitt and Fuhrmann 2019), wherein experiences may be offered at lower cost and risk than real-world counterparts. The rationale is less established in English Literature, where the main unit of knowledge – the text – is readily available, and where close reading of the written form (even in drama) is given precedence (Bulman 1984). Indeed, there remains an anxiety that potentially beneficial active classroom techniques or performance-based pedagogies (Schupak 2018) may 'waste time and become a haven for chaos' (Perry 2007, quoted in Schupak 2018). Despite lively experiments in theatre, VR is less commonly explored in English Literature, especially in relation to small-group teaching – the 'dominant pedagogic genre in English studies' (Gibson 2010), as is represented in the institutional context for this study.

This gap is reflected in the extant literature: while there is ample on the epistemology and pedagogy of VR or the 'virtual' more generally, there has been comparatively little scholarship on VR in English teaching specifically. In one recent intervention, Tatro-Duarte and MacQuarrie supported literature students to understand complex poems through play within a VR game followed by a discussion of the text; they found improved cognition (2020). Another project presented VR scenes from *Oliver Twist* which included historical details relevant to the novel's context (Palmer et al. 2021). However, this evaluated the impact through improved comprehension test scores, rather than (as we do) how such experiences might be conducive to rich in-class discussion. This is standard pedagogy in HE English where viewing a work in another medium is usually preparatory to

oral discussion of a text (QAA 2023). A closer study of our model is another conducted by Tatro-Duarte (2022), which examined through interviews how HE students constructed knowledge from a VR encounter with literary poems. Here, VR facilitated 'the move from watching to being a part of the experience' (n.p.). Tatro-Duarte posits that participants experienced knowledge transference by associating with the text their own memories and aspects of identity that were stirred by being embodied in the VR space. Our study builds on this by understanding how far VR-based methods may be viable and useful to the English classroom, but specifically in relation to 360-video which may be produced at a lower cost than the 3D or game-like resources described above. This media been labelled as 'cinematic virtual reality' or CVR (Mateer 2017). Here, as with conventional film but unlike 3D environments, viewers are unable to move or interact, and cannot see their own body in space. As such, theories of how their (re)embodiment as a virtual character shapes their learning do not apply in quite the same way as in other forms of VR (Banakou et al. 2020; Riva, Wiederhold, and Mantovani 2019); at the same time, there is still a feeling of strong presence (Barfield and Weghorst 1993) when viewing 360-video within a VR headset. Mateer's term captures some of these unique affordances of 360-video viewed in VR. However, as we discuss below, in articulating their experiences our participants also used terms that stood beyond the conventional paradigms of film, theatre, or video game virtuality. We describe this as 'critically-embodied spectatorship', a term explored further in our conclusions below.

The sense that 360-videoed theatre is neither quite theatre nor film is confirmed when we consider the problematic position of the camera. In traditional theatre, we are encultured to the conventions of spectatorship (for example, our relation to the illusory fourth wall); televised productions, too, have an established perspectival semiotic. However, 360-video places us in relation to a scene (like film and television) but with the agential capacity to look where we want (like theatre) but not move around (as we can in real life or in 3D-VR). Despite possible disorientation, in initiating this study we hypothesised that it is precisely by placing students in a non-mediated way in a scene as VR does, but without free movement due to 360-video's limitations, that they may be stimulated towards perspective-taking. As described by Keen, literature involves 'the sharing of feeling and perspective-taking induced by reading, viewing, hearing, or imagining narratives of another's situation and condition' (2007); difficulty in empathising, which may be increasingly apparent among learners (Konrath, O'Brien, and Hsing 2011), results in flawed knowledge and understandings of literature; conversely, pedagogic approaches informed by literary study's cognitive turn could be advantageous (Tucker 2022). This study therefore began by understanding how the fixed camera position that is usually required by 360-video may be turned from technical limitation into pedagogic benefit, by encouraging students to inhabit the perspective of another in a scene. By building this into production design we hypothesised this could generate a teaching and learning experience, facilitate perspective-taking, and thereby encourage student engagement and critical insight.

To establish this preliminary assumption, we ran an initiation workshop with five internal academics, to understand how they currently used filmed performance in small-group teaching, and the ways in which VR might offer an interesting alternative. One emergent observation was that 360-video and VR viewing might give students access to privileged and unusual perspectives on a play. For example, we might occupy the point of view of elite spectators on the elevated wagons that formed the

stage of the touring mediaeval mystery play; this would be interesting to develop in future work. More immediately, after trialling a variety of existing 360 theatre recordings, it became apparent that particular attention should be paid to the camera's (and thus VR spectator's) position in a scene, in order to maximise the perspective-taking benefits and minimise some of the oddities of such a way to view theatre. It was felt that students would be better able to overlook the novelty of the technological mediation and focus more to how it helps them understand textual or thematic issues were they to occupy a position that had a logical presence in the scene being portrayed. This is illustrated with two contrasting examples of 360-video from the collection *Shakespeare and Virtual Reality* (Wittek and McInnis 2021).

One is an American Shakespeare Centre production of *Hamlet* (Wittek 2021), in a reproduction of Shakespeare's first indoor theatre, Blackfriars. This places us in an entirely unprecedented position, on stage front, elevated above the main audience. Although Wittek claims this takes 'the oddly distanced perspective necessitated by the virtual reality camera' (76), by being at once viewers of the action on stage *and* being spectated upon this elicits the 'nightmarish' feeling of being observed that is a common feature of being present in VR spaces amid a crowd (Slater et al. 2020); it demonstrates how 360-video can trouble the mental model of our body's relationship to the illusory environment (Beacco et al. 2021; Biocca 1997). This confirms the importance of diegesis to the camera position (Stam 1992) – that is, whether a camera is placed from the point-of-view of a seeing object in a scene, such as a CCTV camera or character, or whether it is non-diegetic with no rational basis in the storyworld and thus no reason for our presence in a scene.

A more successful approach adopts a diegetically-credible camera, in order to exploit the feeling of uncomfortable presence in a way appropriate to the text. David McInniss produced a 360-videoed *Taming of the Shrew* for a Shakespeare course at the University of Melbourne (Mcinnis 2021). Here the action unfolds around us in a familiar domestic kitchen, with the camera located beside a counter, as if we are a bystander at the party; this immediately creates a more understandable relationship between the camera position and the space. In their reflections on a more recent play, *Fellow Creature*, Charlton and Moar (2018) suggest that 360-video and VR may be most impactfully used when it heightens the spectator's innate 'tendency towards voyeurism' (189) and complements a play's existing ideological power relations. This certainly seems true of the *Shrew*. The fixed camera enhanced the domestic tension so that the immobile spectator recognises their 'complicity' as a passive bystander to the action. McInniss reports this experience 'invariably proves strongly affective' (27) for students, the sort of benefit that is disciplinarily relevant.

Our research design

Our production was built around incorporating diegetic versus non-diegetic points of view when spectating, to better understand how these fixed positions in 360-video may support students' move from observation and affective perspective-taking into critical discussion. We recorded one scene from a play (*Hamlet*) in which there was a viable reason for the position of the camera witnessing the action, and one scene (from *Top Girls*) in which there was not; both these plays are taught in a Level 1 compulsory English Literature module, so students would already be familiar with the text. This

comparison allowed us to test whether viewers felt more present, with the mediating technology being less apparent, if there was a reason for their 'voyeuristic' perspective on the scene. Furthermore, Charlton and Moar (2018, 189) speculate that there is 'a fruitful field for future exploration' in using 360 and VR to see the action from various points of view such as that of actors. Clearly, actors are diegetic observers in a scene, and so we also positioned a camera to occupy each characters' point of view. These comparisons between third- and first-person perspectives formed the basis for the experiment.

Research questions

In developing research questions, it is important to recognise that conventional television or theatre productions – even low-quality performances – are likely to prompt enhanced insight and engagement in subsequent classroom discussions and learning activities compared to reading the text alone. The challenge is to understand how a 360-video, experienced in VR, might enable students to respond to the work in an especially perceptive way, or to stimulate in-class discussion.

As 360-video and modern VR headsets represent a relatively niche combination, we were aware of the possible propensity for bias if students reacted to the technological novelty as much as to the interpretative issues highlighted in the plays. Our research questions and instruments were therefore designed to help us understand the *added* value of 360-video through VR compared to other forms, within the context of a seminar-style setting authentic to a university classroom where knowledge is socially constructed (Vygotsky 1978) through group analysis and discussions. We thus considered the focus group methodology to be the most conducive to these epistemological underpinnings.

Our research questions were:

1. How does the use of camera point-of-view in 360-video reveal critical issues in the text?
2. How can the use of multiple points-of-view in 360-video, when experienced through VR technology, be an effective vehicle for learning in the context of English Studies in HE?
3. What are the limitations of these technologies when used in this way in answering the above questions?

Materials and methods

We recruited four student actors to produce 360-videos of short (c.10 minute) scenes from Act 3 Scene 1 of Shakespeare's *Hamlet* and Act 2, Scene 2 of Caryl Churchill's *Top Girls* (Shakespeare 2009; Churchill 1991). The former features Hamlet's 'to be' soliloquy in which he contemplates suicide, followed by a confrontation between himself and Ophelia who, in an example of dramatic irony, is less aware than the audience of Hamlet's self-doubt and thus baffled by his anger towards her. The scene is witnessed by Claudius and Polonius, lurking unseen, which gave us a diegetic rationale for our voyeuristic camera, positioned on a balcony looking down on the two characters. In

Churchill's Thatcher-era *Top Girls,* the aspirational employment agency boss, Marlene, interviews and encourages a younger woman, Jeanine, to take a new job; the scene explores the limits of feminist solidarity in the 1980s, as Marlene manipulates Jeanine into downplaying her plans for marriage, children, and travel in order to cater to her potential male bosses. Churchill's dialogue is rapid and stichomythic, with the added complication that two characters often talk concurrently. Taking place in a small office, with the two characters seated opposite one another, this scene required us to position the camera non-diegetically, at eye level and equidistant beside the two characters. In terms of putting the viewer in the point-of-view of a character, both scenes entail a power dynamic with a dominant character (Hamlet and Marlene), and a submissive character (Ophelia and Jeanine).

Recording the videos

Location selection; production design
Hamlet was filmed in the mediaeval (1669) Cosin's Library on the Durham University campus, which provided a generally contemporaneous setting. *Top Girls* was recorded in a meeting room, dressed with posters and flip-charts to suggest a 1980s recruitment agency.

Owing to budgetary limitations and an intention to avoid over-interpreting the scenes through costume choices, we employed minimal production design. For *Hamlet*, the titular character wore a plain back shirt, black trousers and black shoes; Ophelia was dressed in a red period dress. For *Top Girls*, Marlene wore simple office attire with pointed shoes and heavy eyeshadow; Jeanine wore casual attire and trainers.

Camera selection
The videos were recorded using two commercially available small form-factor 360-degree cameras: the Ricoh Theta Z1 for the scene from *Hamlet* and the Insta 360 One X for the scene from *Top Girls*. Both utilise two fisheye lenses facing in opposite directions; the two wide-angle images are digitally stitched into a single spherical image which provides the effect of a 360 field of view.

Practical recording considerations
Mise en scène. The field of view presented practical challenges for recording the videos. A typical video or image can be composed such that the positioning of the camera and focal length of the lens can portray a subject or scene without including extraneous production elements, such as equipment. 360-video captures space more completely, so decisions must be made whether to record with visible amenities such as lighting, or to find ways to conceal them. To better preserve the suspension of disbelief, the videos were produced with only the actors present in the recording space. Audio was captured using concealed wireless lavalier microphones (Shure BLX Wireless). The film crew, director and non-visible actors operated outside of the recorded space. For the 'embodied' camera point-of-view, where the diegetic position of the camera would take the place of a character in the performance, lines were read into the room by the non-visible actor.

Experimental design

The exploratory focus group is a research instrument well-suited to eliciting unique thoughts, generating new ideas, and triangulating shared meanings (Fern 2001). The research participants were recruited from an open call of Level 2 and 3 English Literature students who had already taken a Level 1 Introduction to Drama module. This was the only demographic data collected about participants and deemed necessary to answer the research questions.

Participants were randomly allocated into two focus groups (2× $n = 4$). This replicated the format of the small-group tutorial or seminar and provided the opportunity for participants to explore the richness of their experiences and beliefs (Morgan 1997) in depth. Participants were asked to reread the relevant scenes in advance, as is common preparation for small-group teaching (Gibson 2010) and then engaged in the 2 hour experiment. They experienced the videos using Oculus Quest 2 VR headsets followed by a mediated, seminar-style discussion with the research team. Participation was recognised with a £50 voucher.

Before the experiment, the participants were asked about their prior use of VR headsets in order to surface any presumptions around spectatorship that the participants had. Three participants testified to having prior experience with VR (at a museum, and via a game played by a family member). They were given time to adjust them to fit comfortably onto their heads. Participants were informed that they would be presented with videos taken from different points of view, that they would be provided with short breaks in between each video, and that if they felt uncomfortable at any time that they were free to remove the headset. In addition, a laptop was prepared with the '2D' representations of the videos, where participants could use the mouse to look around the field of view in the event that they found either the headsets or engaging with the videos to be uncomfortable.

The experiment space was configured to position participants safely from risk of collision or injury when they were less aware of their physical surroundings. The videos were played simultaneously to all headsets using the 'Showtime VR' media management software, following this sequence: *Hamlet* third person; Hamlet's perspective; Ophelia's perspective; *Top Girls* third person; Marlene's perspective; Jeanine's perspective. In each case, the first-person viewings included the more dominant character first.

The semi-structured focus group then explored instinctive first impressions and what participants learned as a result. It has been long observed that in the English classroom, the teacher's own identity and the outcomes that students intuit they desire shape their responses (hooks 1994); conversations about texts are never neutral, and ours was no different. But while our findings – whether about critical perceptions of the text or perceptions of the technology and media affordances – are not unbiased, equally this replicates classroom realities and we reflect below on the richness and diversity of the critical conversations that emerged through discussion. Although we had three research questions in mind, the lead academic adopted the disciplinarily conventional dialogic approach, prioritising open questions about the texts to allow students to bring more of their own knowledge to the fore. Participants were first prompted to think 'as an English student' rather than about the experience per se. The initial question was very open, inviting them to identify what they found 'interesting' about each film; they were then asked to
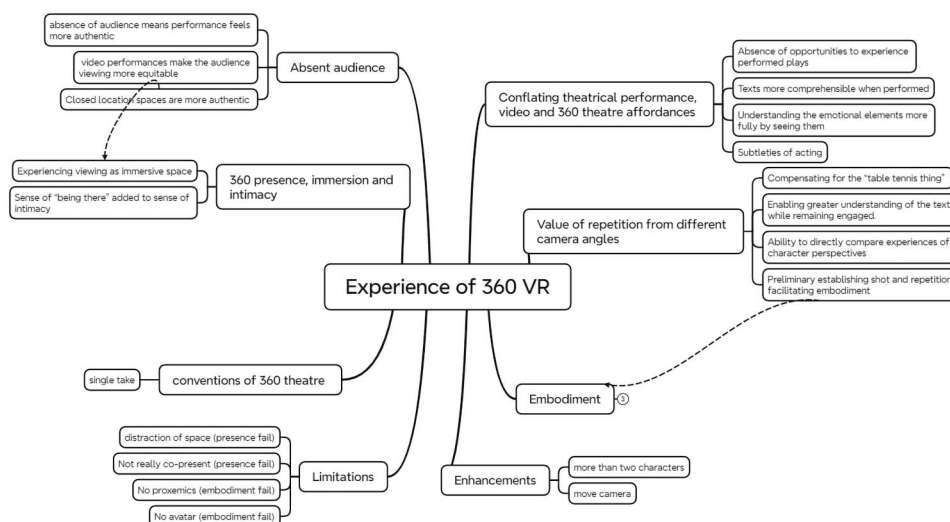
Figure 1. The themes and subthemes identified within the transcripts of the focus groups.

compare how far their affective or intuitive responses were expected given their extant critical understanding of the text. While subjective responses are rarely rewarded in final assessment in English, in the classroom this is an inclusive method that acknowledges the diversity of feelings in individual readers or viewers (Horton 2024). Only towards the end did we move into more pragmatic questions, about how they felt this experience differed from theatre or television and about the technical limitations or ways to improve the 360 and VR experience.

The discussions were recorded, transcribed, and anonymised. Thematic analysis of the first focus group was then conducted through the constant comparative method by coding participants' statements according to emerging themes, grouping quotes according to these codes and then reviewing codes to look for duplication, greater distinction within and between codes, and for where they nested within over-arching themes (Kolb 2012, 84). The remaining focus groups were then analysed, each by another researcher, as a check of these codes, with additional data and subthemes being added where these were identified. A second round of analysis was then conducted, with these themes re-sorted to align into more coherent cognate groups (see Figure 1). Although this process depended on the interpretations of the researchers, it aimed to incorporate inter-coder reliability by synthesising three separate analyses (Olson et al. 2016, 30).

Limits of study

The research participants were self-selected from amongst those already studying within the English Studies department. They were a subset of students, motivated and available to take part in a study, without disclosed disabilities that could be a barrier to a full interaction with VR. Those students in the department are also a subset of the larger (global) population studying English Literature at university. This severely limited the

generalisability of any findings outside of a HE context. Furthermore, the resources available to the project were constrained, in that the number of focus groups that this enabled us to run was limited, and the length of the engagement with students was restricted.

Nevertheless, this approach to pedagogic research is a common one in practice-based research, which is a domain that accepts the iterative and incremental process of scholarship, particularly within low-resourced constraints (Palmér and van Bommel 2021, 125.) The criteria for quality for research of this type are relevance, validity, originality, precision, predictability, reproducibility and relatedness. The validity of a practice-based case study is determined not by the size of the sample, but the nature appropriateness of the conclusions drawn from the research (Palmér and van Bommel 2021, 120–121). We emphasise that our conclusions are specifically relevant to students of a UK university studying English. As with any case study, wider generalisations are the remit of later iterations of field of research. Nevertheless, this study has relevance since the opportunities presented by increasingly affordable 360-video recordings and VR headsets may follow the trajectory seen with mobile devices or the internet. Identifying at an early stage how best to make use of these technologies in a pedagogically-appropriate setting in advance of their wide-scale adoption is therefore timely.

Where the study is weakest is in the predictability and reproducibility of the findings. With an experiment that draws from a small, self-selected sample size we can make few claims about how subsequent cases may find participants responding, and we welcome further studies to investigate this. However, relatedness, i.e. how closely the research aligns with both the nature of the subject studied and the study of that subject (Palmér and van Bommel 2021, 121), is clearly met. We are exploring a novel way to engage with the literary-critical study of plays in the English Literature context, where (as discussed in the literature review) there is relatively little discipline-specific scholarship on the use of 360-video and VR.

The one aspect of the quality criteria above in which the study fell unexpectedly short was that of precision of language and terminology. An emergent finding from the study was the lack of clarity of the language used to enquire about, and describe the experience of, spectatorship and engagement with the 360 VR experience. This is an innate absence, we argue, in our shared language to adequately describe these aspects, and led us to coin the phrase 'critically-embodied spectatorship' as a first step to explore this experience, discussed further in our conclusions.

Findings

What can the use of camera point-of-view in 360-video reveal about critical issues in the text?

As discussed, one difficulty of experimenting with 360-video in the context of drama is that any production – whether film, filmed theatre, or theatre itself – will help students to realise issues that are only latent in a text, e.g. implied stage directions. Participants commented on this, such as in relation to *Top Girls* where because characters speak simultaneously (indicated by / marks) it is impossible to read linearly, and only clear when performed. This could of course be also realised through conventional performances. This initially supports Schroeder, Siegle, and Craig (2023) in that the high resource cost

of producing 360 and VR may not be justified by marginal pedagogic benefits. In English, however, it is important to identify not just learning in terms of content – the cognitive level emphasised by Schroeder and other studies of instructional video in more vocational or STEM disciplines – but also the affective. The added value of 360-video was the intensification or amplification of this experientially. While students did not necessarily develop critical insights that they could not have attained through other means, their engagement with VR nevertheless prompted discourses of literary-critical value as part of a teaching context.

Particularly prominent was the sense of sharing the space with someone else (a character, not the audience) and the personal presence noted by Sadowski and Stanney (2002). Participants reported a striking sense of 'being there, even though you're not'. This activated a range of social and emotional responses, that prompted analytical insight; for instance, during Hamlet's soliloquy, participants evoked they could 'sense why people think he's gone mad because he's like in this massive room … going on and on and on'. Again, such a perception is hardly unique but nevertheless suggests this 360 and VR methodology can be a meaningful activator for interpretation. Furthermore, there was a more particular strength of this mode in relation to the sense of voyeurism. The other important dimension to the scene is that Hamlet is being spied upon. Polonius and Claudius have previously asked Ophelia to extract Hamlet's motivations. They then watch Hamlet's soliloquy and subsequent dialogue. This 'hammered home just how slightly sneaky that was, that real intrusion and it's like a kind of enjoyable one, so a sense of voyeurism.' On television, one could also watch the scene unfold from the hidden perspective of Polonius and Claudius. However, traditional filmography would rarely adopt only that point-of-view during a scene lasting 10 minutes. Long takes are typically felt as an artistic affectation or a meta-cinematic device (Gibbs and Pye 2017), with perspectival cuts being more likely and naturalistic. Inhabiting one perspective for the duration feels more natural in 360-video, and the third-person perspective, in which we implied viewers were in the diegetic point-of-view of Claudius and Polonius, was therefore particular to this medium, prompting our participant to more immediately recognise their role in this scene.

This supported our supposition that in 360-video it can be valuable to position the camera in a diegetically-credible way and that, as Mcinnis (2021) found, the feeling of discomfort from being a passive bystander as events unfold can complement dramatic themes. Participants recognised the credibility of the camera position: for *Hamlet* 'there could be a way to read it as the viewer being Polonius watching the exchange so there was something dramaturgically interesting in that.' However, complicating our hypothesis about the importance of diegetic relationality, participants also noted the benefit of a non-diegetic camera position in *Top Girls*, since their location at eye level between the two characters meant they had to keep turning their heads between them to follow the rapid dialogue. One focus group described the 'table tennis effect'. This drew out the formal importance of Churchill's stichomythic dialogue where characters talk so rapidly they end up speaking over one another. Further, this rhetorical mode, when instantiated visually, also highlighted the conflict between the characters by requiring participants to make an 'executive choice' whether to watch a character deliver a line or the elicited reaction, or to move their head rapidly between characters to follow the tense exchange. Although traditional film could of course cut between characters,

involving the viewer in the decision is a special affordance of the embodied properties of 360-video viewed in VR.

A further aspect was emphasised when occupying the perspective of the less dominantly-portrayed character in each scene. In Ophelia's perspective in *Hamlet*, participants noted that this stimulated a feminist reading and required an understanding of Ophelia's position as a victim. This sympathetic interpretation is not critically new (Showalter 1986), and was familiar to the students. It did, however, provide added impetus. The actor playing Ophelia was a foot shorter than the actor playing Hamlet, and when the camera was located in her perspective, viewers found they had to look up to Hamlet: noting it felt 'intimate or much more […] personal, especially […] when you're Ophelia and Hamlet is right up in your face'. The stasis of the 360-camera proved advantageous; the Ophelia perspective was powerful because 'you can't move, you can only watch Hamlet act and deliver his diatribe'. The kinesic and proxemic elements were clearly more intense despite participants having no control over the distance from the performers. In the same vein, occupying the point-of-view of the interviewee Jeanine in *Top Girls*, as her idealised responses are challenged by the assertive Marlene, led to active engagement:

> I think rather than just viewing it as two people who are having a conversation that keeps overlapping, being in one person's perspective you kind of want to put forth that opinion. You know at the end of the sentence [while the other character overlaps] that you wanted to say, to make room for their voice to be heard more than you would in the third person.

Yet a paradox is that this feeling of being passive and wanting to be active is one produced by the experimental design itself, rather than the technology mediating the original text in an objective manner. Participants observed that occupying a dominant and less dominant character's point-of-view in turn implied something about the responses we anticipated, and emphasised a reading of the power dynamics in each scene as opposed to other possible themes. As discussed above with reference to bell hooks (1994), the literature classroom is ideally a place of 'communal' investigation, but inevitably a teacher's choice of material will prompt certain theories or interpretations over possible alternatives. This bias is inevitably introduced by an experimental design that mimics classroom conditions. While introducing subjectivity (albeit authentic to discipline) to the study, it also offers a salient critique of the 'illusion of non-mediation' supposedly offered by VR (Lombard and Ditton 1997). In a literature classroom *any* point-of-view, and any choice of medium, situates learners critically and pedagogically as well as spatially.

A final critical benefit over conventional viewing, although again one of degree rather than kind, was that our approach helped participants perceive the small details. It was notable that even though these were rich sets – the opulent and historic surroundings of Cosin's Library and an employment office dressed with visual cues – viewers tended not to look around distractedly but rather at the character who was speaking to them. Especially when in the point-of-view of a character, they reported that they felt obliged to look where the text implied. In focusing thus, they were enabled to perceive small issues of body language. For instance, eye contact felt 'so personal and judgy [judgemental] to my character.' Of course, in a conventional filmed production, a camera could offer a close-up of a character to convey detail or could hold the gaze of an interlocutor. However, it is rare and could be disconcerting for a camera to maintain a singular

focus throughout a standard filmed production. In a dialogue, for instance, it is more common to cut away from a character to see key moments of the effect their speech is having on another. Yet by placing the viewer in the character's perspective, we ensured focus in this way. Participants noted the bold makeup of the Marlene character, the faded shoes of Jeanine, and the redness in Hamlet's face as he challenges Ophelia. They suggested that the acting was more naturalistic rather than exaggerating gesture as would lend itself to visibility in theatre.

Overall, the use of 360-video did not draw out wholly new critical observations, nor those that students could not have made by through conventional media. Crucially, however, the intensity, focus, and affective dimensions encouraged close engagement with the material. This in turn stimulated seminar-style conversations about the aesthetic, political, and literary qualities of the material itself.

How can the use of multiple point-of-views in 360-video, when experienced through VR technology, be an effective vehicle for learning in the context of English studies in HE?

A specific research aim was to determine the effects of altering the camera point-of-view and offering multiple point-of-views of the same scene, in order to activate pedagogically essential empathetic perspective-taking (Keen 2007; Tucker 2022). As previously described, the participants noted the discrepancy between *Hamlet* and *Top Girls* in that the latter presented a non-diegetic, third-person point-of-view. Conversely, not only did the camera position in *Hamlet* distil a sense of Hamlet's paranoia, it carried narrative import by implying the presence and voyeuristic intentions of a narratively consistent third party. Moreover, the research participants testified that the sequence in which these different point-of-views were presented in the experiment was complementary to the forming of such insights*:*

> There's continuity which makes it really interesting and directly comparable.

Participants testified that they were unlikely to have reread the same scene three times in succession or re-watched conventional video recordings three times for a given scene in direct sequence ordinarily. It was therefore the enforcement of this as a parameter of the experiment that created the conditions for this deeper insight to be elicited and for metacognition to occur. This effect was heightened by the immersive nature of the VR technology, as real-world sources of distraction were abated for the duration. One cannot, for instance, become distracted by a notification from a mobile phone or allow one's attention to be drawn to what is occurring out of the window. One's mind may wander, but the visual and auditory stimuli on offer are at the discretion of the facilitator.

One participant noted that while they agreed that the use of different point-of-views in the experiment did entail deeper cognitive engagement with the text, the changes in camera position felt most impactful as a means of humanising key characters in important scenes, and therefore may be less viable as an approach for consuming whole plays. Another participant mused on the potential effects of presenting scenes with multiple actors as opposed to just two, or on the merit of exploring texts where a power dynamic – either narratively explicit or socially implicit – was less prominent. If, for

instance, one where to instantiate a scene between Hamlet and Polonius, or Gertrude and Ophelia, would the stimulated impressions have been as overt?

Thus, as an outcome of this research, we assert that neither the use of multiple point-of-views nor the repeated exposure to the same scene is more conducive to deeper learning in isolation. It is only when combined within a guided pedagogic encounter – such as seminar – using the affordances of immersive VR technologies, that the potential emerges for a critically embodied learning experience.

What are the limitations of this technology when used in this way in answering the above questions?

As described above, the added intimacy of the technology drew directly from personal perceptions of space, but the experience was frustrated by participants being unable to move within the space or readily articulate their experiences by drawing upon the spectatorship conventions that they could apply to theatre, filmed productions and video games. This supports previous scholarship that observes tensions between allowing VR viewers freedom versus a curated narrative experience (Bucher 2017; Sheikh et al. 2016). This becomes pertinent in 360-video: the medium appears to be 3D, but unlike a computer-generated space, it is not possible to change position within it relative to the image seen (Mateer 2017). This lack of positional agency proved dissonant, but not mutually exclusive, with the sense of being embodied within the space:

> you can't physically get closer […] [Hamlet] gets closer and you can't technically back away.

This was partly a consequence of the experimental design. Because the cameras were standing in for characters through each portrayal of a scene and have to be static (any dolly used to move them would be visible in shot) the performers had to remain *in situ* throughout each successive shot. This was less noticeable for *Top Girls* where both characters were seated, but in relation to Hamlet, who would usually be animated as he meditates on the possibility of suicide, one student justifiably noted 'I feel like I always imagine that being paced around the room … and I think it was quite jarring to see it static.' While in one sense a limitation, in another – as discussed above – the immobility of the camera accentuated feelings of patriarchal power to which Ophelia is subject, as the viewer is unable to move away while she is confronted. This supports the affective and empathetic dimensions that are essential in English comprehension (Keen 2007). More practically, compared to the high technical bar for producing 3D-VR (Wohlgenannt et al. 2019), 360-video seems more feasible, and when attention is paid to the positionality of the camera its lack of affordance (lack of interaction and movement) can also be turned to an advantage in eliciting discussions about how power dynamics are conveyed through a passive posture, how one character's stasis may be a sign of social and political forces at work. Nevertheless, in most cases 360-video will work best when the lack of movement is appropriate to the themes of the scene; it would seem very odd to have a similar inability to move dynamically in, for example, a sword fighting scene.

As described, the shift between different points of view (third and then each characters') elicited powerful responses, as did the sense of stasis when critically embodying a passive character compared to a more active one. There is also a limitation in that this technique requires comparative filmography. In a traditional film, including a film

version of a theatre production, wider establishing shots would typically be used to allow viewers to understand the proxemic relationship between actors and the space they inhabit, before then shooting in close-up or over the shoulder of one character. But in a 360-videos such as these the body is erased; on looking down all that is visible is a small artefact of the tripod's legs, rather than a human body or digital avatar. To occupy a character's perspective with no prior reference to their relationship to the space or other characters would potentially disturb the viewer's proprioceptive sense, and so it was essential to see the performance in a more conventional way before being placed in a character's point-of-view:

> when I was in the second video, when I was doing the soliloquy, if I hadn't seen the first video, I wouldn't know that I was meant to be Hamlet. I'd think I was just in room listening to someone talking because you look down and you don't see a body or anything, you don't realise that you are (meant to be Hamlet).

This affirms Bucher's (2017) observation that although we experience our own lives from a first-person perspective, we cannot assume that VR allows us instinctively to feel like the protagonist of a narrated experience, especially if a narrative (as is the case with 360-video) does not allow the viewer any agency. Likewise, it supports Senel et al.'s (2023) point that in VR sudden bodily transformation (of the self or others) can be highly disruptive. While seeing the same scene from multiple angles compensated for this and then supported critical insights, from a teaching perspective the requirement to have at least one take from a more conventional angle could be a limitation in terms of developing a resource, or the time required to view these.

More pragmatically, while the affordability and utility of 360 cameras create the potential for the rapid generation of 360-video, the relative cost-per-head and complexities of managing multiple VR headsets raise questions about the viability of our adopted approach if applied at a larger scale within contemporary HE settings. As early as 1984, Miriam Gilbert observed that classroom time hinders innovations in performance-related pedagogy in English: 'it takes time to watch the performance, and even something that runs only five minutes will take twice that long by the time chairs are arranged, the scene performed, and the chairs rearranged' (Gilbert 1984). These effects are more substantial when VR is introduced, given the need to charge devices before use, provision headsets to contain activity-appropriate media or software, allocate time to arrange the room spatially to allow safe utilisation of devices, and provide sufficient safety orientation and guidance to students. It may take as much as a day of preparation to facilitate a single session and the support of additional staff members or technicians.

Conclusion

This study set out to understand whether viewing 360-video in VR devices can be pedagogically meaningful and can help students critically evaluate dramatic texts. We built on existing scholarship (including stronger and weaker 360 performances) to understand how the fixed diegetic position of the camera could be turned into an advantage, given the lack of the affordances of 3D-rendered VR to enable a viewer to move actively in a scene.

It is evident that the differential benefit of 360-video over conventional viewing of drama was one of degree rather than kind. Students did not interpret either text in

radically innovative ways or reach novel critical conclusions. They did, however, experience a sense of intensity and the power dynamics of scenes, confirming the affective benefits of this approach (Schroeder, Siegle, and Craig 2023) which facilitated cognitive development in seminar discussions. It is also worth noting that these students were already familiar with these texts and related critical issues. Nevertheless, they uniformly enjoyed the experience, and thanks to the VR isolation were impressively engaged despite being asked to watch the same scene three times. It is interesting to speculate what the learning gain might be were 360-video and VR used to introduce the material to wholly naïve viewers and readers, or those at an earlier educational level.

We have also identified how important it was to attend to the position of the camera in a way that is sympathetic to intentions of the original text. We assumed that the third-person diegetic point-of-view (*Hamlet*) would feel more natural than the non-diegetic third person camera position (used in *Top Girls*). However, in both cases the perspectives worked for different reasons: Hamlet's because this created a deeply immersive sense of voyeurship as Polonius, with the camera not cutting as it might in conventional film; *Top Girls* because the agential requirement to turn one's head to see which of the characters was speaking drew out Churchill's rapid dialogue and the sense of an understated struggle between the two women. Positioning the camera from the point-of-view of an actor also seemed most successful when its stasis reflected the passivity of that character, as when Ophelia was unable to react or step away from Hamlet's aggression. It proved problematic when, in the point-of-view of Hamlet, the character was not pacing around as may be anticipated. In more complex scenes involving less obvious power differences, or with more than two characters, it might be harder to achieve equivalent affective results.

When adopting an actor's perspective, it was also important that prior to this the scene had been seen from a third-person point-of-view, so that the embodied or proxemic relationship between the actors was understood before the viewer occupied their point-of-view, at which point there was – peculiarly – no body to be seen. One major advantage of 360-video, especially in the context of drama, is that it potentially enables companies or student actors to prepare or repurpose largely conventional productions ready for VR consumption. Further consideration, however, needs to be given to how to compensate for the limitations of this, such as enabling cameras to move, or how to cut between different camera positions or actorial points of view without disorientating the viewer.

What are the limitations of our language in answering the above questions?

We have discussed the issue of linguistic precision being an unanticipated but unavoidable flaw. The participants (and researchers) struggled to articulate impressions of embodied VR specific to 360-video. As one participant observed: 'it's not quite theatre, and not quite television'. Even though participants were aware that they were watching a recording, they experienced the judgements of characters as empathetically embodied recipients. Mateer's (2017) 'Cinematic Virtual Reality' (CVR) feels inadequate here – it describes the technologies delivering the experience, not how it feels to be part of it.

A more appropriate lens is the critical embodiment explored by Cedillo (2018) in discussing the academy's refusal to acknowledge the role of bodily experience in assessing

and critically participating in learning and research. Drawing on Merlau–Ponty's observation that bodies are the 'sites where the social and corporeal dimensions of our lives coincide' (n.p.), Cedillo argues for a pedagogy that will 'engage the body, to stir the emotions and move others' (n.p.).

Moreover, being engaged bodily in an online environment, specifically with VR, has been discussed for at least two decades. The work of Murray and Sixsmith (1999, 315) reported participants' embodiment as a function of the sensorial (the realness of environment, responsiveness to interaction, etc.) and the morphological (i.e. the plasticity of body boundaries). Slater and Steed's work with students rehearsing in a virtual theatre demonstrated embodied responses: social anxiety (2002, 152) and deference to more realistic-looking avatars (2002, 153). Control over the direction of gaze was found to enhance the degree of embodiment in these experiments, as in ours (2002, 155–157).

This transcends the traditional suspension of disbelief experienced when viewing a film or a play, in that it requires only an immersion in the proceedings so that one's own sense of self disappears. Embodiment is the experience of being *part of* the proceedings as an active participant. Childs demonstrates the importance of the epistemic shift experienced when a learner is not only suspending disbelief but has become embodied – the change from identification with 'the little fella walking about' *on the screen* to being the 'I' *in the world* of the screen (2010, 157). This changes the degree of criticality with the environment, other learners, and, crucially, the subject.

Our participants, however, reflected a different nature of embodiment to the aforementioned dimensions. Those studies took place in computer-generated virtual worlds in which the learners had a presence via an avatar. Our learners were located in a virtual world but their agency within it was reduced to a choice of the direction in which to look; they were not represented by bodies in the space, and were only observing recorded events. They nevertheless testified a degree of embodiment due to the parameters of our experiment, in that they were exposed to repeats of the scene but placed in positions previously occupied by one of the actors. This lent them a body by proxy, which although not visible to them or able to move, still engendered feelings of ownership, responsibility to that body and complicity in, or exposure to, the action as that character. In this way, participants demonstrated the taking of affective and empathetic perspectives that are fundamental for literary understanding and higher levels of discursive engagement with a text, as established by Keen (2007) writing about empathy, or Tatro-Duarte and MacQuarrie (2020) in equivalent findings on VR in the English classroom.

This provided a unique experience for our learners – not fully embodied, but still 'better than watching' – and one which we had not expected. We have coined the term 'critically-embodied spectatorship' to describe this ontological position: the conjunction of being embodied and being a spectator. Understanding precisely *what* defines this distinction, and how best to employ this to enhance learner criticality in exploring texts, will be our next step.

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Data availability statement

The anonymised data that support the findings of this study are available from the corresponding author upon reasonable request.

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