CONVERGENCE

The Hobbit hyperreality paradox: Polarization among audiences for a 3D high frame rate film

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Abstract
The 3D high frame rate version of Peter Jackson's first *Hobbit* film was touted as offering one of the most realistic and engaging movie-going experiences to date, its innovative projection technologies promising to greatly enhance viewers' sense of immersion in the fantastical world of Middle-earth. However, our empirical research suggests the specific combination of technologies in *The Hobbit* had paradoxical perceptual and experiential effects. Whereas the groundbreaking hyperrealistic aesthetic enhanced both spectacular *and* narrative immersion for many viewers, a significant number experienced this same visual aesthetic as unconvincing and distracting and as undermining suspension of disbelief. In this article, we identify key factors contributing to polarization among *Hobbit* viewers on aesthetic grounds and offer empirical insights into how emerging cinematic technologies may be reshaping film spectatorship.

Keywords
Audiences, composite model, film, high frame rate (HFR), spectatorship, stereoscopic 3D, *The Hobbit*, *Tolkien*, reception theory

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Introduction

Film-makers have long engaged in technological experimentation aimed at creating more compelling cinematic experiences, often as a countermeasure to address fluctuating theatre attendance (Turnock, 2013). Utilizing recent innovations in film image capture and projection technologies, *The Hobbit* trilogy (2012–2014) combined computer-generated imagery (CGI), stereoscopic 3D and high frame rate (HFR) to create a unique digital aesthetic that director Peter Jackson promised would effectively eradicate the cinematic 'fourth wall' and greatly enhance viewers' sense of immersion in the fantastical world of Middle-earth. However, our empirical research suggests viewers were divided on the value and effects of these technological innovations, the specific combination of which appears to have generated paradoxical perceptual and experiential effects for different individuals. Whereas for most respondents, *The Hobbit's* hyperrealistic digital aesthetic enhanced both spectacular *and* narrative immersion, a significant number experienced it as unconvincing and distracting, and as undermining suspension of disbelief – but for complex reasons. In this article, we draw on preliminary findings from a large-scale reception study to illustrate the dominant modes of response to *The Hobbit's* technological innovations and identify key factors contributing to polarization among viewers on aesthetic grounds. Our research thus offers a useful counterpoint to the predominant approaches in research and scholarship on CGI/3D/HFR spectatorship, much of which either relies on theoretical conjectures or abstracts technological mediations from the narrative and social contexts in which they are normally encountered. The insights we offer can help refine theoretical understandings of how emergent cinematic technologies, as well as paratextual framings of them, might be reshaping film spectatorship in the digital age.

The Hobbit's hyperrealistic aesthetic: Insights from *The Hobbit* Audience Project

Most recent Hollywood action/fantasy blockbusters rely heavily on what Allison (2011: 326) terms 'digital indexicality', meaning 'a blend of computer-generated images and material recorded from reality'. Live action photography and prosthetics are used in combination with motion capture, digital stunt doubles, CG characters, digital compositing and rotoscoping, creature design and intensive computer animation. These different digital and analogue film technologies and techniques interact and intermingle in complex ways to create hybridized characters and scenes, in turn reflecting the dominant place of animation within contemporary digital cinema (Manovich, 2001). Ideally, the layering of what is real and what is artifice will be rendered seamless on screen, such that viewers cannot distinguish digitally created or enhanced characters, objects and settings from real-world ones. Notably, Peter Jackson's *Hobbit* trilogy radically extends the cinematic apparatus by combining advanced CGI with stereoscopic 3D (see Atkinson, 2011, for an overview) and HFR to aid in the visual recreation and projection of the characters, landscapes and sense of wonder associated with J.R.R. Tolkien's Middle-earth. This particular combination of technological enhancements was very much a novelty for audiences of the first *Hobbit* film, *An Unexpected Journey* (*AUJ*; 2012), and generated mixed reviews among film critics and regular film goers alike, for reasons we seek to explain here.

As noted by Tryon (2013) and Turnock (2013), Jackson's use of 3D HFR reflects a contemporary trend in which technological novelty aids in 'rebooting' cinema in an increasingly competitive mediascape, along with his desire to overcome some of the significant shortcomings of stereoscopic 3D projection (Aylsworth, 2012), which has undergone a recent resurgence following

short-lived appearances in the 1950s and 1980s (Kim, 2013; Klinger, 2013). Seeking to eliminate motion blurring and to ease other troubling visual artefacts caused by dimness, ghosting and flickering (Häkkinen et al., 2008; Solimini, 2013), Jackson filmed *The Hobbit* at 48 frames per second (fps), rather than the standard 24 fps.[1] Jackson was confident that in combination, HFR 3D would pull viewers out of their seats and transport them right into a Middle-earth more detailed, realistic and lifelike than ever before, greatly enhancing their sense of pleasurable immersion (Jackson, 2012).

Whilst our research provides support for precisely this effect, it nonetheless reports a significant number of critical reactions to the trilogy's hyperrealistic visual aesthetic. In what follows, we detail the findings of two online surveys of global audiences for *AUJ* and *The Desolation of Smaug (DoS)* conducted between February and July in 2013 and 2014. The first survey was conducted in seven different languages and received over 2800 valid responses from viewers in more than 80 countries (1922 of these responses were to the English language survey), whilst the second (English language only) survey obtained more than 1000 usable responses. Our approach combined Q methodology with a conventional questionnaire that solicited quantitative data as well as rich qualitative insights. Q methodology makes it possible to identify groups of audience members for whom the reception experience is similar enough to constitute a substantially shared viewpoint (Davis and Michelle, 2011; Michelle and Davis, 2014). These like-minded individuals therefore engaged, emotionally and cognitively, in comparable ways with the films' narrative, aesthetic and multidimensional connections with other 'paratexts' and 'intertexts', including the *Lord of the Rings* (*LotR*) trilogy and Tolkien's wider oeuvre. The quantitative data collected allowed us to link these shared viewpoints to a range of socio-demographic and other factors. However, as our respondents were mainly recruited online and were self-selected rather than constituting a representative sample, our findings cannot be generalized to the wider viewing public and we make no claims about the distribution of the perspectives and patterns of response we have found within the general population of *Hobbit* viewers.

Our analysis applies Michelle's (2007) Composite Model of modes of reception, which charts four modes of audience engagement – *transparent*, *referential*, *mediated* and *discursive* – between which viewers can potentially shift or 'commute' at different moments. Of most relevance here are the transparent and mediated modes. A *transparent* mode of reception:

> reflects a close subjective relation between viewer and text whereby viewers temporarily suspend disbelief and critical distance to grant fictional worlds the status of real life, entering fully into the story to derive the specific forms of pleasure and enjoyment intended by the text's makers. (Michelle et al., 2012: 110)

The transparent mode represents the preferred response to a fantasy adventure film, such as *The Hobbit*, and is generally marked by suspension of disbelief, narrative transportation and immersion, character identification and strong emotional affect. Conversely, in the typically more distanced and objective *mediated* mode, viewers 'focus on the constructed nature of the text as an aesthetic object and media production' (Michelle et al., 2012: 111) and may evaluate its quality and execution, often drawing on extensive knowledge of the codes, conventions and processes through which media texts become realized and the various imperatives governing their production. Significantly, these two modes of response echo key distinctions identified in theoretical discussions of viewers' reactions to stereoscopic 3D and other visual special effects (see North, 2005; Ross, 2012, 2013; Wood, 2013). Our research thus contributes much-needed empirical evidence to support and refine this work, a point to which we return in the discussion.

In this article, we trace how technological enhancements affected audience receptions of *The Hobbit* and attempt to explain why the combination of extensive CGI with HFR 3D projection generated disenchantment among a significant segment of our respondents. We briefly overview the existing research empirically documenting audience responses to CGI, 3D and HFR before detailing our respondents' qualitative comments in response to these films. We suggest that the divergent reactions they report stemmed in part from an inherent hyperreality paradox that emerges from the combination of technologies that generate contradictory visual effects and artefacts. Together, noticeable and distracting effects were produced for a significant segment of *The Hobbit's* audience, leading them to report experiences that we categorize as indicative of a *mediated* mode of reception. Among the majority of others, those same effects either greatly enhanced perceptions of realism and textual presence or else awareness of their distracting effects was (seemingly consciously) subordinated in favour of close narrative engagement, thereby sustaining their apparent adoption of the preferred *transparent* mode of response.

However, we also note the complexity of audience responses to *The Hobbit's* technological realization, which were in many cases shaped by aesthetic tastes, cinematic values and existing intertextual allegiances. Most notably, viewers' knowledge of and loyalty to Tolkien's original works and their appreciation for the technical expertise and craftwork that contributed to the appearance and critical success of Jackson's earlier *LotR* film trilogy clearly complicated their reactions to *The Hobbit's* hyperrealistic digital aesthetic. As we illustrate, these prior allegiances as well as multiple other factors – such as the novelty effect, audience anticipation, gender, age and professional industry experience/media education – potentially shaped viewers' appreciation of technological enhancements. In this instance, these films' pioneering application of particular extensions of the cinematic apparatus appeared to generate a complex response, in turn variously reinforcing and undermining pleasurable spectatorship for different audience segments.

Technologically mediated immersion, or distraction?

The capacity for structural features of media products to influence audience perceptions and emotional responses has long been acknowledged (McLuhan, 1964; Ji, Tanca and Janicke, 2013). This potential becomes especially significant given the heavy reliance of today's blockbuster action and fantasy films on digitally created or modified spectacle, the virtually seamless blending of fiction with reality, and overt expressions of technical prowess. Yet the various emerging digital aesthetics typically enjoy a mixed reception from media commentators and are often critiqued in terms that assume or imply that visual spectacle is inherently antithetical to narrative (Wood, 2002). Such concerns were expressed in earlier film criticism of the growing reliance on spectacular digital visual effects since the early 1980s. Whilst audiences for Hollywood action and fantasy blockbusters now routinely anticipate extensive and proficient use of CGI (Langford, 2005), it remains contentious among some film-makers and theorists who regard it as a celluloid shortcut that signals the demise of authenticity in film-making and of the cinematic art form. Critics suggest that CGI has less value than film because it is not real and has no real referent, and its extensive use is seen to interrupt the temporal flow of the narrative, particularly in genres where demonstrating the latest cutting-edge special effects is explicitly emphasized. Neale refers to such demonstrations as the moment in which 'the narrative starts to freeze and spectacle takes over' (Neale, 1983: 12; see also Pierson, 2002; White, 2013).

Critical work in this area is only slowly moving beyond this assumption of a dichotomy between spectacle and narrative (Whissel, 2014): King (2001), for instance, suggests that spectacle can

complement narrative by retaining viewers' attention and conveying a sense of emotional and physical impact, whilst Wood (2002: 371) argues that by exaggerating and animating certain narrative elements, digital effects add 'an extra dimension to the narrative progression'. Providing they are not overtly artificial, such effects can help prolong the cinematic illusion and thus support narrative immersion. Somewhat differently, North (2005: 48) argues that special effects can help connect 'text with context, image with apparatus' and potentially stimulate multiple levels of comparison and speculation – about textual events, but also about other and future uses of such technologies – suggesting a process of commuting between transparent and mediated modes of reception.

Not dissimilar debates have emerged in relation to stereoscopic 3D film projection, which critics have described as 'gimmicky' nonsense and a distraction whose spectacular visual projections disrupt immersion and narrative engagement (Ebert, 2010; Higgins, 2012; Kermode, 2009; see also Johnston, 2012). Zone (2007) suggests that '3D images present a heightened realism – a visual allure so powerful that they can easily overwhelm the story and subvert the narrative' (as cited in Brown, 2012: 262). However, Brown (2012: 263) counters such critiques by arguing that 'if heightened perceptual immersion, during spectacular moments, compromises narrative immersion, by interrupting the narrative, both nonetheless work towards the common goal of immersion'. Klinger (2013) meanwhile notes that whilst some uses of 3D may be disruptive, it can nonetheless be deployed in the service of classical storytelling. Academic debates aside, the commercial success of recent 3D film productions clearly suggests that mainstream audiences remain enamoured with this medium, leading some to question whether the hyperrealistic aesthetic that 3D both reflects and intensifies might soon become the 'new stylistic normal' (Klinger, 2013: 430).

This history of negative reactions to technological innovation in film-making informed divergent responses to HFR among *Hobbit* previewers and critics alike. Whilst proponents touted HFR as radically redefining the future of cinema and uncritically reiterated a familiar discourse affirming the inherent desirability of greater realism (Turnock, 2013), critics of the 10-min preview screened at CinemaCon in April 2012 slated HFR as looking cold and 'tawdry, like a made-for-TV film' (Marks, 2012, n.p.). Whilst some felt it enhanced their sense of immersion, others felt the footage was so hyperrealistic that it disrupted narrative engagement (as cited in Quesnel, Lantin, Goldman and Arden, 2013). Turnock (2013) notes similar responses from those who deemed HFR's hyperrealistic film-making as 'uncinematic' and 'like a TV soap opera' (p. 31). She suggests such critical responses are a reaction to 'an aesthetic of digital convergence' (Turnock, 2013: 31) in which the text too closely resembles less prestigious media genres or looks like a live performance rather than an artistically rendered fictional lifeworld. Whilst this offers a partial explanation, our research paints a somewhat more complex picture. In our analysis, we acknowledge the significance of viewers' pre-existing aesthetic assumptions and values but also highlight the role of their *generic* expectations and intertextual allegiances, which appear to have framed their response to certain visual artefacts generated through *The Hobbit's* pioneering combination of technologies.

Insights from empirical research

There exists some empirical research on receptions of cinematic special effects more generally (Hoffner, 1995; Zillman and Gibson, 1996) and some theoretical work on CGI *spectatorship* (Giralt, 2010; Manovich, 2001; Prince, 1996). However, there are surprisingly few empirical studies of CGI's impact on viewers' perceptions of realism and related experiences of narrative

transportation, immersion and emotional affect. In one small-scale study, Meade (2004) found evidence positively linking viewers' perceptions of the degree of realism of a scene with their experience of emotional intensity. Meanwhile, Sobchack (2006) found that many *Final Fantasy* film viewers felt the hyperrealism and extraordinary detail of the CGI characters made them both 'too real' and 'not real enough' simultaneously. She suggests viewers' awareness was consequently directed towards the 'disillusion of life' and away from the characters' performance or the narrative, thus lending support to earlier critical claims.

As a recent special issue of this journal indicates, there is also an emergent body of theoretical work suggesting stereoscopic imagery is contributing to an increasingly *embodied* spectatorship (Casetti and Somaini, 2013; Ross, 2013). Whilst the best examples of this work avoid reiterating earlier problematic constructions of a singular 'ideal' spectator position which the analyst can simply infer, there appears to have been little engagement with the rapidly expanding field of experimental research exploring *actual* rather than theorized audience responses to stereoscopic 3D. Whilst much of the existing research relates to 3DTV and focuses on a narrow range of psychological variables (Cho et al., 2014), the insights offered are nonetheless useful in interpreting our own findings. Many studies have documented 3D viewers' experiences of physical discomfort, including visual fatigue, motion sickness and headaches (see Häkkinen et al., 2008; Pölönen et al., 2012; Solimini, 2013; Tam et al., 2011; Urvoy et al., 2013), some of which might be attributable to the vergence–accommodation conflict in which viewers' eyes are forced to converge and focus at different points (Atkinson, 2011; Banks et al., 2012; Tam et al., 2011).

Other 3D research seeks to measure viewers' experiences of physical *presence* in the virtual world, which refers to feeling part of a mediated environment (Häkkinen et al., 2008; Slater and Usoh, 1993).[2] Häkkinen et al.'s (2008) respondents, for instance, consistently referred to feeling transported to the film world by 3D imagery. Transportation and feelings of presence may be further enhanced by the *genre* of 3D content. Pölönen et al. (2012) report that the sci-fi action fantasy film *Avatar* was experienced as more immersive and engaging than the music documentary *U2 3D*. In other research on *Avatar*, many respondents reported feeling very immersed in the highly realistic and compelling fictional world of Pandora, effects that appeared to be intensified among those viewing in 3D (Michelle et al., 2012). Whilst some early studies similarly noted that 3D scenes are positively associated with greater emotional engagement, impact and arousal (see Häkkinen et al., 2008 for an overview), more recent research does not support such effects (see Ji and Lee, 2014). Genre, however, still appears to be significant, with Ji and Lee (2014) finding evidence that 3D used in action movies increases viewers' reported levels of enjoyment and presence, whilst its use in documentaries may increase narrative engagement. Finally, some research suggests viewers perceive 3D imagery as more 'natural', realistic and lifelike than two dimensional imagery (2D) (Pölönen et al., 2009; Rooney et al., 2012; Seuntiens et al., 2005).

However, as Cho et al. (2014) observe, existing studies often do not replicate natural viewing situations with normal media stimuli, instead typically using still images or short movie clips or extracts lacking the character and narrative development of entertainment media. There are also contradictory findings (e.g. see Bombeke et al., 2013; Ji, Tanca and Janicke, 2013), possibly due to the use of different stereoscopic contents (Cho et al., 2014) or a gradual habituation effect reducing 3D's impact on contemporary audiences (Ji and Lee, 2014). Furthermore, much of the research to date is laboratory based with small numbers of respondents. Hence, the ecological validity of the findings remains unclear, and it is difficult to identify individual factors that may influence viewers' stereoscopic experiences (Cho et al., 2014).

Seeking to address such limitations, Cho et al. (2014) invited 188 participants to view a 15-min 3D film in a cinema and measured their feelings of presence, arousal and overall satisfaction, correlating these with individual factors, including socio-demographic characteristics. They found viewers were more aroused and satisfied by visual content in which both near and far objects were manipulated, but also noted a strong 'novelty effect' as regular 3D film viewing 'reduces viewers' feelings of presence, sensation of depth, and arousal' (p. 13), but not overall satisfaction, thus lending support to the explanation offered by Ji and Lee (2014). Finally, Rooney and Hennessy (2013) surveyed 225 viewers immediately after seeing *Thor* in cinemas either in 2D or in 3D and found that whilst those watching *Thor* in 3D experienced a greater degree of perceptual realism and were less distracted during the film, they were no more emotionally aroused than 2D viewers, nor more satisfied overall.

Whilst research on stereoscopic projection is ongoing, the impact on audiences of HFR and its possible interaction with 3D has only very recently become the subject of investigation. The decision to use this combination in Jackson's *Hobbit* films was informed in part by small-scale laboratory experiments conducted by visual effects specialist Douglas Trumbull in the 1970s and 1980s, which showed that the reduction of blurring made possible by HFR significantly enhanced viewers' sense of immersion and realism and greatly increased visual stimulation (Trumbull, 2011). Kuroki (2012) found that HFR made motion appear more natural and enabled viewers to make finer discriminations between different degrees of depth. Experimental research conducted by the S3D Centre in Canada further suggests that HFR can enhance the intimacy and emotional impact of static shots whilst enhancing visual memory retention and increasing engagement with subject matter (Quesnel et al., 2013). However, they also found that HFR creates motion artefacts in dynamic shots, exacerbating shaky or jerky movements and at times creating an 'animated' look even for live characters. Furthermore, the lighting of human subjects appears sharper in HFR, making real people appear 'video-game like' (p. 8). Backgrounds also become separated and more defined, exposing any flaws in set construction (Quesnel et al., 2013). Ruppel et al. (2013) recently examined 30 viewers' acceptance of HFR 3D in a series of filmed scenes, focusing on their perceptions of smoothness and sharpness of motion and overall visual impression. Forty-eight fps was rated as superior on all measures, leading the authors to conclude that HFR improves viewers' perception of mid-fast motion in film. Finally, Kim and Oh's (2014) study of 45 viewers' preferences relating to 3DTV suggests that most prefer HFR in almost all situations where stereoscopic depth and rapid motion are combined.

To date, however, much of the existing research on audience responses to 3D HFR is very small scale (e.g. Kuroki, 2012, $n = 6$) and experimental, and once more does not capture the reactions of naturally occurring audiences. Our research is possibly the first large-scale study to explore audience reactions to these innovations in depth and captures rich qualitative data in the form of viewers' self-reported reactions and responses to the very first mainstream 3D HFR film released. Unlike much earlier research, however, we avoid abstracting these reactions from viewers' engagement with a specific (and for many viewers, highly significant) narrative and also seek to acknowledge the possible influence of wider social and discursive contexts of reception. This is especially important since various assessments of the nature and possible effects of 3D HFR were already circulating within the wider public domain and on *LotR* fan websites prior to the first film's release (Davis et al., 2014).

In what follows, we explore respondents' diverse and indeed polarized responses to the specific combination of digital and projection technologies used in the first and second *Hobbit* films. Whilst it is difficult to separate out the specific effects and experiences of each of these

technologies (given that they were encountered in combination and in a specific narrative context), we nonetheless show that the majority of respondents believed HFR enhanced their perception of textual realism and their feelings of physical presence within the 'world' of Middle-earth. Elaborate and richly detailed scenes and crisp action generated feelings of awe and excitement, whilst the greater intimacy conveyed by HFR intensified their emotional engagement and response to characters and scenes. For a smaller but still significant number of other respondents, however, the same technologies had the opposite effect and were obvious and distracting as artificial constructs. In addition to introducing a number of visual artefacts that are essentially very similar to those observed by Quesnel et al. (2013), the combination of CGI, 3D and HFR intensified some viewers' awareness of the films' extensive reliance on technology to create the appearance of reality, one that was not perceived as natural or convincing. Perceptions of textual *realism* (and whether it remains seamless) thus clearly lie at the heart of this paradoxical audience response to the first two *Hobbit* films.

Realism in this sense refers to a film's perceived authenticity and believability. In a transparent mode of reception, realism is assessed in terms that accept the basic textual premise that the depicted reality should be related to *as though* real. Viewers in this mode may consider whether characters, actions and events seem true to life, realistic and believable, given the internal parameters established by this fictional world, and in keeping with information and cues provided within the text itself. The text is thus evaluated on its own terms and in accordance with its own internal logic (Michelle, 2007).[3] Whilst viewers are of course aware that what they are seeing is not actually 'real' (Barker and Brooks, 1998), this awareness must be momentarily suppressed in order for viewers to suspend disbelief and enter into the fictional storyworld on its own terms. The images and scenes on screen must therefore be convincingly realistic or sufficiently lifelike to persuade the viewer of their possibility of being so. Should they fail in this respect the illusion of apparent reality will be undermined, disrupting the basic textual premise and the condition upon which the preferred mode of reception relies. As the following analysis reveals, however, such judgements are largely subjective assessments formulated as the viewer encounters and evaluates the fully realized text in light of their own expectations, knowledges, aesthetic tastes, intertextual allegiances, affective predispositions and perceptual processing capabilities. In what follows, we present a qualitative analysis of respondents' divergent reactions to *The Hobbit's* hyperrealistic digital aesthetic drawing on preliminary findings from a larger longitudinal study of transnational receptions of Jackson's film trilogy.

Visual spectacle, apparent realism and the transparent mode of reception: Appreciation for technological enhancements among viewers of *The Hobbit*

In the case of the English language post-viewing survey of *AUJ*, by far the largest group of respondents, whom we describe as *Enchanted* Hobbit *viewers* ($N = 1511$),[4] adopted a transparent mode of reception and were generally extremely enthusiastic about the film. They reported a high degree of narrative transportation and immersion, as well as powerful emotional responses to seeing Middle-earth realized on screen. Some lavishly praised the quality and realism conveyed by the film's CGI and other visual effects, using words such as 'fantastic!', 'flawless' and 'outstanding'. For these respondents, the blending of artifice and reality was perceived as relatively seamless most of the time, allowing them to suspend disbelief and focus their attention fully on the

narrative, as expressed by this respondent: 'Watching this movie, I became so caught up in the story – I couldn't tell what was real, or computer generated. I loved it – that the story took control, and the technology brought it to life' (Canadian woman, 49 years).

Whilst it wasn't necessary to see the film in 3D HFR to feel 'swept away' or transported by *The Hobbit's* narrative, many among this group remarked that the greater clarity and detail provided by 3D HFR greatly enhanced their sense of wonder at the beauty, detail and believability of Jackson's rendering of Middle-earth. HFR was described using superlative terms such as 'stunning', 'amazing', 'breathtaking', 'spectacular', 'beautiful' and 'gorgeous' and was said to have made most things appear more natural, realistic and lifelike than in other formats. One respondent commented that 'The detail of costume and sets, action and scenery, were only enhanced. The experience was breathtaking in its clarity' (American woman, 49 years). Others were equally effusive:

> I am visual, I am an artist and film buff. After seeing a showing in HFR followed by a regular 3D IMAX, I am sold forever on HFR. The clarity is subtle . . . until you have a moving/panning camera, which is nearly all the time! . . . In HFR I could see the fantastic detail (WETA rules!) of Erebor, understand what was going on in action scenes, and tell who was doing what in the mad race through the Goblin Caverns. (American woman, 57 years)

Many of those viewing the 3D HFR version reported strong sensations of physical presence in the fictional storyworld. They described feeling as though they had stepped through the screen into Middle-earth and could reach out and touch objects, and even participate in the action alongside characters, offering support to Casetti and Somaini's (2013: 421) contention that 'cinematic 3D . . . allows spectators to project themselves into the represented world, almost to the point of touching it'. One respondent commented that:

> The quality and clarity of the film made it feel like Middle-earth was around me. It's the only film I've seen that has, to me, looked like it was actually panning out in front of you – that you were a first-hand witness of the adventures. (New Zealand woman, 22 years)

For many of these respondents, the fourth wall was effectively dissolved: 'I felt like I was in the action, not looking at a screen. I found myself wanting to pull [out] my sword to help fight the Trolls and other nasty characters' (American, 53 years).

Usefully, many of these respondents had seen the film several times in different formats and thus were able to make more considered comparisons and reflect upon their initial responses in each case. Most often, viewers reported a strong preference for the new projection rate, which they believed had increased the films' realism and enhanced their feelings of immersion in the on-screen world. HFR was said to have greatly improved the quality and clarity of the imagery and the overall 3D-viewing experience, with better colour and significantly less motion blurring during panning, making fast action scenes smoother and easier to follow. Several noted that HFR was more comfortable and enjoyable to watch than standard 3D and resolved previously experienced problems such as eye strain and nausea.

However, even among those who were otherwise enchanted by the first *Hobbit* film, there were particular moments when narrative immersion was disrupted as the artifice of film became more apparent, diverting their attention away from the story - very similar effects were also noted in the case of *DoS*:

> At times I was disappointed with the animation in 3D and the 48 fps as it made certain aspects look fake, which distracted from the film and I found myself concentrating on the fire or waterfall rather than the action or dialogue. (New Zealand woman, 15 years)

> I made a point to see it in 3D and high frame rate for film two and I'm glad I did for specific scenes (barrels, showdown with Smaug). However, it did seem like a studio film with the hyperreal quality to the film. I prefer the non-action sequences to film more like traditional film. It's less distracting. I don't want to be overwhelmed by the perceived detail of the costumes at the expense of the plot. (American woman, 54 years)

Some members of this group intimated that they had consciously chosen to pay selective attention to those features of the text that *facilitated* immersion, whilst downplaying distracting elements, as with one respondent who found the 3D HFR 'Distracting at first (the characters looked like cutouts against a background) but once you stopped paying attention it was fine' (Australian woman, 24 years). LeGrice (2002) suggests the spectator colludes with the text out of a desire for 'magic transport' and for this reason resists 'recognition of the artifice in favour of immersion in the illusion' (as cited in Hutcheon, 2006: 143). Similarly, Pierson (2002: 103) notes that 'the audience knows very well that the impression of reality cinema is capable of producing is in fact fiction, but they choose to believe in these fictions all the same'. In effect, these respondents deliberately privileged engagement with narrative rather than visual spectacle, a capacity also noted by Thompson (1999, as cited in Ross, 2013).

Others were generally enthusiastic and optimistic about the new film technologies showcased in *The Hobbit*, and relatively forgiving of occasionally disruptive visual effects and artefacts, as with one who remarked, 'There was still a bit of blurring on fast pans (that took me out of the moment) but overall it was a pleasure watching the film' (British man, 39 years). Another said, 'It was stunningly different, like no other cinema I had seen before. Although there were issues with the lighting and the roll-off on objects, meaning that I didn't think the visual effects blended seamlessly' (British woman, 31 years). One other noted, 'I did see a bit of speeding up when I viewed the film. I'm hoping that is part of my eyes/brain just adjusting to this new format' (American man, 30 years). Thus, whilst some acknowledged minor issues of quality and visual distortions, this group typically defended the films as praiseworthy for pioneering, if not yet perfectly executing, the use of cutting-edge film technologies, with several suggesting they and other viewers just needed time to adjust and to learn how to appreciate the new format. For a smaller group of others, however, these and other issues of quality and presentation undermined their ability to suspend disbelief and relax into pleasurable immersion.

Alienation and disaffection: Mediated responses to *The Hobbit's* technological 'enhancements'

Many of those who experienced the first Hobbit film in a mediated mode were Tolkien fans whose attention was focused on evaluating the quality of Jackson's adaptation of a much-loved novel, which they found lacking in certain respects (*Disappointed Tolkien readers*, $N = 111$). However, 68 *critics of technological 'enhancements'* articulated an alternative mediated response that was more specifically framed by a critical reaction to *AUJ*'s visual aesthetic, which they experienced as disruptive and displeasing. Others also voiced concerns about the quality of the CGI and noted distracting visual artefacts generated by the combination of CGI, 3D and HFR, including many *Bored and disillusioned* Hobbit *critics* ($N = 58$). For these respondents, the visual 'spell' of the *Hobbit* films was in those moments fractured, and they could only perceive constructed artifice *as* artifice. The cinematic illusion that generates film's perceived realism was disrupted as the

technologies collectively failed to achieve a convincingly realized world, making it impossible to sustain suspension of disbelief.

For many respondents, the primary benchmark for assessing the success of *The Hobbit's* technological innovations was the earlier *LotR* trilogy. Widely acclaimed for their detailed production design, many fans and critics remembered these films as having rendered an almost seamless realization of Middle-earth (Cubitt, 2008). Several participants nostalgically recalled the 'exemplary' quality of the *LotR*'s prosthetics, modelling and 'bigatures', and 'seamless' integration of CGI:

> Watching *LotR* was like stepping into another world. The graphics and special effects blended so perfectly with the real props/actors/locations it never felt like watching a bunch of movie sets sewn together with graphics. It felt real. And that was a decade ago. (American woman, 22 years)

Some intimated that *AUJ* and to a lesser extent *DoS* looked 'artificial and cheap' in comparison, whilst others noted that the *LotR*'s 'gritty realism', conveyed through the use of natural settings and carefully crafted props and prosthetics, had been replaced by extensive over-reliance on 'bright and shiny' CGI, resulting in many character scenes having to be filmed against a green screen. In the process, these respondents felt the *Hobbit* films lacked authenticity and believability both internally on their own terms and in their intertexual relationship to characters, settings and objects associated with the 'lovingly handcrafted' *LotR* film trilogy:

> In some scenes where the camera pans over scenery . . . the computer graphics were incredibly jarring and [this] takes away from the efforts of realism. I feel like there's a lot less involvement in the craftsmanship side that negatively affected the entire experience. (Canadian woman, 26 years)

> There were lots of effects that you could tell were effects. Poor animation, like the bumblebee and the butterflies. Things just don't seem real like they did in Lord of the Rings. I'd rather have them go back to the old-fashioned unanimated way of doing things, like they did for *LotR*. (American woman, 20 years)

Numerous respondents stated that the CGI was too clearly apparent and very noticeable in places. Lacking the 'random untidiness of natural objects' (Cubitt, 2008: 187), scenes and characters appeared fake, undermining the credibility and believability of the films' rendering of Middle-earth. One respondent said, 'I could totally tell what was CGI and what was not. There was not enough reliance on real New Zealand and too much jiggery-pokery with CGI settings, props, physical appearances, lighting, weather conditions, everything' (German woman, 51 years). Particular scenes and characters such as the pale Orc, Azog, were frequently cited as exemplars of the films' failings in this regard:

> I recall the scene where they are riding towards the forest of Mirkwood and it looked like a videogame with bad graphics – you could just tell that the ponies were CGIed over the background. . . . Scenes like that instantly snapped me out of it and prevented me from 'submerging' into the story. (Canadian woman, 25 years)

> The effects used to create Azog were particularly fake-looking, along with the Orcs of Goblin Town. This repeatedly lent the film a sense of unreality, which distracted from the story and limited the effectiveness of numerous plot points. (Australian man, 23 years)

> The barrel scene had some of the most fake-looking special effects I've ever seen. The water looked fake. The CGI Dwarfs in the wide shots looked fake. Everything about it looked fake. (American woman, 32 years)

> The Orcs never once felt remotely real for me the same way that the Uruk-hai did in scenes like Amon-hen and Helm's Deep. Also, too much elf kung-fu, Legolas surfing on dwarf heads . . . really sucked me out of the story and reminded me that this was just a movie. (American man, 23 years)

As Purse (2007: 10) has argued, virtual bodies often appear unconvincing because they do not conform to the physical norms and laws that viewers associate with and recognize from actual human bodies and movements, being subject to gravity and laws of physics governing mass, motion, impact, and so on, and with particular muscular and skeletal movements (see also Lamarre, 2006). Many of these viewers commented on the unnatural movements of characters and creatures, such as seemingly weightless goblins who were effortlessly dispatched in large number in *AUJ*'s Goblin Town. By failing to observe physical laws governing movement associated with the real world, these scenes remained unconvincing. Ultimately for these respondents, the extensive reliance on obvious and seemingly poorly executed CGI undercut the believability of the fictional storyworld and at times overwhelmed the narrative, disrupting or entirely precluding the pleasurable narrative immersion associated with a transparent mode of reception. Thus, they remained somewhat distanced, disengaged and more keenly aware of the films' flaws as constructed media products, reflecting their adoption of the mediated mode.

Whilst much of the negative commentary related to CGI, some critiques focused on negative physical reactions to the 3D, mostly among those who saw the films in 24 fps 3D. One respondent said, 'Some of the frenetic rushing about at the edges of my vision was extremely distracting and left me with a migraine (nausea and all)' (Malaysian woman, 26 years), whilst another 'was displeased with the 3D experience. It looked sometimes as a big pop-up book with cardboard figures and decoration' (Ukrainian woman, 33 years).

Rather more respondents focused on their experience of viewing in 3D HFR, and it is evident that HFR introduced additional tensions and perceptual artefacts. Many noted that the unprecedented clarity and visual detail revealed through HFR simultaneously drew attention to the artifice of *The Hobbit*'s sets and prosthetic effects, such that 'Props looked like props, sets looked like sets, and make-up looked like make-up' (New Zealand man, 47 years):

> The HFR only served to highlight how artificial the film-making process was. . . . It resembled a 'making of' rather than a film itself, with the peculiar result that it made everything – notably sets, lighting, costume, actors in the background you wouldn't ordinarily pay attention to – look somewhat cheap and ineffective. (British woman, 32 years)

Others suggested the HFR made the films look and feel 'low budget', 'clunky' and 'far too fake', thus supporting Turnock's (2013: 47) observation that HFR 'strips the footage of much of the sheen of its "cinematographic" effect, removing much of its expensive production value that has come to separate its look from that of television or videogames'. Others noticed a visual artefact, whereby scenes involving rapid motion seemed sped up, as though watching something on fast forward. Hence, the film appeared 'choppy' and 'disorienting': 'Visually, the movements of the actors appeared insanely rushed and frantic and it was actually very unnerving' (Filipino woman, 27 years). A few noticed jerky camera movements during some close-up scenes: 'Especially the first section in Hobbiton, in which the camera is close to the actors/action and therefore wobbles a lot with every little tiny shake in the camera, is a.w.f.u.l in every way' (Swedish woman, 37 years). Many commented that the use of HFR and high-definition (HD) exacerbated the visual disjunction between real and digitally generated imagery and made it 'blatantly obvious' when real

characters were in scenes alongside animated ones, giving the impression of 'very rough transitions between actors on set and [the] digital world around them' (Belarussian man, 26 years):

> 5K Digital coupled with 48 fps is very unforgiving, and so blending the many computer-generated characters with their hyper-rendered surroundings calls for a more meticulous attention to detail for animators. Sadly, not all of the CG characters meet this elevated standard. (American man, 18 years)

For these respondents, a perceptible visual disjunction between real-life footage and digitally rendered characters, objects and settings further undermined believability and led some to compare watching *The Hobbit* to watching a video game, actors in a play, a 'making of' documentary, HD children's television programme, or 'cheap Brazilian soap opera'.

Interestingly, Lambooij (2005, as cited in Häkkinen et al., 2008) found a significant correlation between naturalness and quality ratings of stereoscopic images. This may offer additional insight into why our respondents compared *The Hobbit* to 'cheap' and culturally derided cultural forms such as soap opera or children's drama. Since the films' visual aesthetic meant settings and characters at times looked unnatural and obviously constructed, respondents assumed this reflected low-production values and by association *cheapness*, since most viewers appreciate that it takes skill as well as financial resources to successfully recreate the appearance of 'natural' reality in film. Much of the 'magic' of cinema, after all, lies in successfully concealing the machinery that *produces* that magic.

Many of these more critical respondents had also seen the films in multiple formats and strongly believed these visual perceptual phenomena were specific to, or exacerbated by, the 3D HFR version: 'Particularly in the high frame rate mode, I felt that characters (especially Azog) definitely suffered. I watched the film in a few different formats, and noticed it wasn't as bad in the regular frame rate' (American man, 37 years).

Paradoxically then, for these respondents the enhanced detail and clarity of HFR drew attention to the constructed artifice of film and created a more visible disjuncture between that which was real and that which was fake. Such moments of less successful image hybridization were experienced by these respondents as jarring, distracting and ultimately distancing, as with one respondent who noted, 'I kept "trying" to be immersed in the HFR 3D, but I continued to notice props and sets and filming that was done in a studio as opposed to on location' (Australian man, 30 years). Another remarked, 'The frame rate seemed to lay everything bare; this was a complete distraction and meant no immersion was possible' (New Zealand man, 23 years). Thus, the presence of *overtly* artificial digital and prosthetic effects rendered it impossible for these respondents to achieve or maintain suspension of disbelief, effectively precluding the desired (and preferred) transparent mode of reception and obstructing the process of narrative transportation. Rather than feeling pleasurably immersed in a hyperrealistic, lifelike and utterly believable storyworld, these viewers adopted a mediated mode of reception in which they were keenly attuned to, and in some cases scathingly disparaging of, the quality of *The Hobbit*'s aesthetic and technical execution and its constructed artifice.

Accounting for divergent responses to *The Hobbit's* hyperreality paradox

Our results suggest that the combined use of 3D HFR and extensive CGI had paradoxical effects for different viewers, with those who reacted negatively to the technologies being more inclined to adopt a distanced and in some cases antagonistic variant of the *mediated* mode of response focused on textual aesthetics. The potential for viewers to commute between two distinct viewing

perspectives has been acknowledged in previous theoretical work on special effects spectatorship. For example, North (2005: 50) suggests that special effects 'derive maximum spectacular impact from their consumption as both convincing fictions and as artificial tableaux'. He also cites Buckland (1999), who describes endeavours to create digital effects that are so photorealistic and convincing that 'the spectator is not forced "out" of the text by special effects which betray their origins as mechanical craftwork' (North, 2005: 51). North further suggests that contemporary viewers have access to an 'exponentially expanding set of extra-diegetic, revelatory intertexts that enhance his/her ability to decode the spectacle' and to reflect upon the means by which cinematic texts are constructed, including in the case of *The Hobbit*, Peter Jackson's video logs. Such material may encourage a mediated mode of response, in which viewers evaluate the execution of the text as an aesthetic object and media production (Michelle, 2007). With reference to stereoscopic 3D, Ross (2012) suggests viewers are invited to commute between subjective versus objective modes of perception and thus from a position of immersion *in* versus external reflection *on* the text – this being the key distinction between transparent and mediated modes of response. As Ross (2013: 412) suggests, 'the extent to which the process of oscillation is consciously experienced is often conditioned by the viewer's recognition of the film's artifice'. Additionally, Wood (2013) suggests visual technologies such as IMAX encourage ambiguous forms of engagement in which viewers commute between immersion in the 'audiovisual extravaganza' of the narrative storyworld and a more distanced mode marked by awareness and evaluation of how that world has been constructed.

This understanding of multiple modes of reception that viewers may commute between clearly resonates with the Composite Model outlined above. Our research thus offers empirical support for recent theoretical claims but also demonstrates that the assumption that these two modes of reception pleasurably coexist is problematic. Our findings suggest that where the mediated form takes a consistently negative aspect, the transparent and mediated modes potentially become irreconcilable. That is to say, it is possible for viewers to find pleasure in both immersion (transparent mode) and evaluation (mediated mode), when evaluations of the text's construction are generally positive (or at least not derogatory) and where the assessment of textual quality supports and justifies close engagement. One can both be awed by the tremendous skill and technical prowess reflected in a film's special effects and experience deep engagement with the storyworld, arguably at different moments. One can even acknowledge some aspects of weakness in the construction of a text but nonetheless accept it for what it is and even seek to redeem that text out of loyalty to a particular director or franchise, for instance. Where such evaluations are markedly *negative* across a range of areas, however, the text may become irredeemably tainted. In such a case, the viewer is likely to be so distracted by particular visual or textual elements that narrative immersion is no longer possible, nor desired: A transparent mode of response can no longer be sustained because the viewer remains painfully aware of the text's technical and aesthetic failings as a media construction.

Further analysis of respondents' socio-demographic data suggests that this kind of interpretive divergence may be related to levels of pre-release anticipation, media studies education/technical expertise, familiarity with digital effects and 3D, and prior intertextual affiliations – most notably, admiration for Tolkien's written texts and/or nostalgia for the look and feel of the earlier *LotR* trilogy (see also Davis et al., 2014). Häkkinen et al. (2008) suggest that viewing highly anticipated and emotionally significant content may lead a viewer to overlook or ignore stereoscopic distortions and visual artefacts that are distracting for others. This certainly seems true of many of our *Enchanted Hobbit viewers*, the majority of whom were existing *LotR* film fans who expressed a

Table 1. Relationship between fandom, liking technological enhancements, and narrative engagement.

		How important was it for you to see *The Hobbit*? (1 = *extremely important*, 5 = *not at all important*)	How many times have you watched *The Hobbit*?	How many times have you read Tolkien's original novel, *The Hobbit*?	Gender	
		Mean	Mean	Mean	Female Count	Male Count
Technological enhancement	Likes tech enhancement	1.3	3.4	6.7	952	467
	Does not like tech enhancement	1.5	2.3	8.7	233	210
Enchantment	Greater degree of transportation	1.2	3.4	7.0	1031	536
	Lesser degree of transportation	1.8	1.7	8.3	154	141
Narrative orientation	Higher narrative orientation	1.3	3.4	7.3	600	262
	Lower narrative orientation	1.3	2.8	7.1	585	415
Character orientation	Characters satisfactory	1.2	3.5	6.9	855	442
	Characters brief and poorly developed	1.5	2.4	7.8	330	235

Note: N = 1922 respondents to English-language survey of AUJ viewers. Totals are less due to missing data or elimination of outliers.

high degree of excitement and anticipation for the first *Hobbit* film and were thus primed and motivated to engage with it on its *own* terms in order to enjoy the immersive pleasures promised by Jackson and in marketing materials. Just as LeGrice (2002) suggests, their strong desire for 'magic transport' and (re)immersion in Middle-earth perhaps led them to resist dwelling on the artificial means through which the cinematic illusion had been created.

For others, it was harder to overlook signs of artifice, for various reasons. Those *LotR* fans who expected or desired continuity with the authentic, grittily realistic look and feel of the earlier trilogy evidently found the hyperrealistic aesthetic of *The Hobbit* particularly jarring. Similarly, many Tolkien readers concerned that the films preserve the 'spirit of the book' also suggested that the emphasis on CGI-enabled set pieces too often came at the expense of storytelling and character development. Both groups critiqued the CGI and 3D HFR, but for different reasons. Our data reveals a significant negative correlation between self-identification as a Tolkien or *Hobbit* book fan and liking of *AUJ*'s technological enhancements (Table 1 and 2). Further, appreciation for *AUJ*'s technological enhancements appeared to decline with increased exposure to the book, but to increase with repeated viewing of the film. Thus, whilst taste for visual spectacle may not necessarily undermine narrative, particular visual aesthetics may not be entirely compatible with narratives as imagined or understood by committed readers.

Table 2. Enchantment and liking of technological enhancements among major audience segments.

	Technological enhancement			Enchantment index		
	Dislikes enhancements	Moderate interest	Likes enhancements	Disenchanted	Moderate interest	Enchanted
G1−: Bored and disillusioned *Hobbit* critics (*n* = 58)	34	24	0	46	12	0
G1+: Enchanted *Hobbit* fans (*n* = 1511)	11	786	714	1	509	992
G2: Disappointed Tolkien readers (*n* = 111)	19	69	23	29	81	1
G3: Critics of technological enhancements (*n* = 68)	59	9	0	6	58	4
G4: Mildly entertained casual viewers (*n* = 21)	0	10	11	8	13	0

Note: N = 1922 responses to English-language survey of AUJ viewers.

Häkkinen et al. (2008) argue that having more experience with stereoscopy may increase a viewer's inclination to notice and be negatively affected by errors and deficiencies because the initial excitement associated with the novelty of 3D has declined. Whilst HFR was a novel technology for all viewers, it is possible that something similar occurred for those who regularly view CGI intensive action films and who may have found seemingly poor quality CGI more obvious and more disruptive. Häkkinen et al. (2008) further suggest that scepticism of new technologies or anticipation of irregular visual effects may make them more salient. If true, the wider critical discussion of *The Hobbit* excerpts screened at CinemaCon may have negatively coloured some viewers' receptions.

To explore these questions, we conducted a detailed analysis of how respondents ranked a selection of Q items from the survey of *AUJ* audiences relating to the perceived effects of technological enhancements. In each case, the statements were selected to reflect dominant themes within the wider concourse around 3D HFR and CGI. We performed cluster analyses on respondents' scores on all statements, creating two groups according to whether individuals responded *more* or *less positively* to *AUJ*'s technological enhancements. We created similar distinctions using Q items related to transportation, immersion and narrative orientation (see Table 1).

Suggestive associations were found between appreciation of technology and prefigurative anticipation. Of the 1456 respondents for whom it was 'extremely important' to see the first *Hobbit* film, almost 93% expressed high or moderate appreciation for technological enhancements. An even stronger relationship was found between appreciation for technological enhancements and immersion in the fictional storyworld: almost 99% of those expressing strong appreciation also experienced moderate or strong narrative transportation. Among those who generally disliked *AUJ*'s technological enhancements, fewer than 6% experienced high enchantment and resulting immersion. In contrast to claims that visual spectacle undermines narrative, we found a strong

positive relationship between narrative orientation (as determined by higher scores on certain statements concerning the *Hobbit* story and its meaning) and appreciation for technological enhancements. We argue therefore that there is a very clear association between liking *AUJ*'s technological enhancements, feeling transported and immersed by the film, and having a strong narrative orientation. Furthermore, although the effects are small, enchantment was significantly and positively correlated with viewing the film in HFR and 3D.

Our findings also suggest that identification with central protagonists is compatible with appreciation of technological enhancements – and hence that narrative engagement and spectacular engagement are again not mutually exclusive. Those who identified most strongly with Thorin Oakenshield[5] had the highest proportion of technology enhancement likers, closely followed by Bilbo. Conversely, those who identified most strongly with antagonists or more peripheral characters, or who did not identify with any character, had the lowest rates of appreciation for technological enhancements. In other words, most did not choose between spectacle and narrative engagement; indeed, the former appears to have facilitated and amplified the latter in many cases. However, those who were alienated by the technological enhancements were also clearly less engaged in the narrative storyworld.

Our observations also challenge many components of conventional wisdom about audience tastes for technologically enhanced cinematic experiences. It is often assumed that CGI-intensive spectacle appeals primarily to younger male viewers, and the greater appeal of 3D among younger viewers (Banks et al., 2012) and children has also been documented (Pölönen and Aaltonen, 2012). We found that taste for CGI, 3D and HFR was indeed related to age, but in a shallow U-shape. The youngest and also the oldest age cohorts were most appreciative of technological enhancements and were also more likely to experience enchantment, whilst respondents aged in the middle were more critical of *AUJ's* aesthetic qualities. This may reflect something about the *Hobbit* movies themselves, which are both an adaptation of a children's book published in the 1930s – thus appealing to an older audience than might normally watch CGI intensive action fantasy films – and an entertaining spectacle seen as suitable for children. Both younger and older viewers may be less familiar with CGI and 3D and, thus, perhaps more easily impressed due to the novelty and habituation effects, following the reasoning of Häkkinen et al. (2008) and Ji and Lee (2014). Further, we found that preference for new cinematic technologies is to some extent gender related, but not in the direction normally assumed; females were about 11% *more likely than* males to appreciate the film's technological enhancements.[6]

Our most significant findings relate to the role of viewers' existing discursive knowledges and competencies. Specifically, experience working in the film or television industries or advanced media production education were the most significant predictors of lower appreciation of the film's technological enhancements. In several cases, these dissenters offered extensive and clearly well-informed critiques of the film's HFR 3D projection and the quality and execution of the CGI and other special effects. This suggests that both technical expertise and perhaps a stronger allegiance to a more traditionally 'cinematic' aesthetic may have played a factor.

However, it is also clearly apparent that evaluations of digital special effects and 3D HFR are not easily separated from the narrative and discursive contexts in which these technologies are encountered. Some critics of *The Hobbit*'s technologies were also generally critical of other aspects of the films, with two key issues in contention: changes made to the original story in the process of its adaptation and the hyperrealistic look and feel of these films, with many expressing nostalgia for the *LotR*'s 'old school' special effects. This finding is particularly significant because most research to date has abstracted 3D and HFR visual content from any narrative or intertextual *context*.

Conclusion

We can tentatively offer some general conclusions regarding the ways that technologically enhanced cinema may either reinforce pleasurable spectatorship or undermine it. Whilst we concur with Wood (2013) that the use of new formats may offer multiple points of engagement for viewers, leading them to commute as Ross (2012, 2013) suggests between being awed by and immersed within a spectacular narrative world (i.e. a transparent mode) and reflecting on the skill behind its construction (i.e. a mediated mode), we nonetheless suggest that the primary goal of those who produce fictional blockbuster entertainment – a goal explicitly articulated by Peter Jackson – is to encourage viewers to adopt a transparent mode of reception in which they experience suspension of disbelief, narrative transportation and pleasurable immersion. Whilst some viewers may periodically commute to the more distanced and objective mediated mode – and thus reflect on the quality of the text's production in terms of visual effects, acting, the script, direction or soundtrack – consistently *negative* and even derogatory evaluations of textual quality potentially undermine deep engagement with the narrative storyworld. Our research shows that cinematic spectacle was a key part of what audiences expected from *The Hobbit*, but primarily as a route to returning to their beloved Middle-earth and enjoying a new narrative in a familiar storyworld, rather than as an end in itself. Indeed, there is not *necessarily* a conflict between spectacle and narrative, as Wood (2002), Brown (2012) and Whissel (2014) suggest, but most certainly there *can* be when visual special effects are perceived as distracting, unconvincing or poor quality, as was true of a small but significant number of our respondents.

Our research also suggests that the combination of stereoscopic 3D, HFR and CGI (at least in this initial foray into applying these technologies) may have generated a hyperreality paradox in which there was a more apparent visual disjunction between real-life footage and CGI. This effect appears to have been compounded by additional visual artefacts that made real-life characters and scenes at times appear animated or artificial. As real-life footage was rendered significantly clearer and more like real life – indeed, hyperrealistic – with the use of HFR, it evidently outran the current capacity of CGI to believably replicate that reality and so undermined the films' perceived (seamlessly layered) realism. Hence, CGI looked more obviously fake; a problem exacerbated in 3D screenings due to additional visual artefacts produced by stereoscopic projection. The end result disrupted narrative engagement for a number of otherwise primed and positively predisposed viewers of *The Hobbit* film franchise.

As Turnock (2013) suggests, debates about HFR film-making reveal some discomfort with contemporary cinema's emerging digital aesthetics, which challenge long-held assumptions about the proper 'cinematic' look. We have noted, however, that whilst overtly fabricated digital spectacle clearly has the potential to discourage and deflect *some* viewers and film critics, *The Hobbit* nonetheless was highly successful in attracting a large and enthusiastic mainstream audience. Indeed, many of our respondents were highly motivated to immerse themselves in the fictional storyworld and to overlook or downplay even quite obvious flaws in the films' execution in order to secure a preferred transparent mode of reception. There are thus sufficient positive responses in our sample to suggest that whilst it introduces new tensions and complexities into digital film-making, HFR successfully addresses some of 3D's evident limitations and its unique digital aesthetic is not unpalatable to many viewers. It therefore seems likely that 3D HFR will secure a foothold among contemporary cinematic technologies, even if some viewers and critics take longer to be convinced of its aesthetic value.

Notes

1. By providing more images to the brain more rapidly, high frame rate eases the strain of integrating them and creates the perception of much smoother movement, as well as 'crisp, clear, realistic images' (Aylsworth, 2012: 66).
2. Various studies have noted that the increased depth of 3D enhances viewers' sense of presence (Freeman and Avons, 2000; Freeman et al., 2001; Ijsselsteijn et al., 2001).
3. This understanding is essentially similar to the concept of 'apparent realism' outlined by Rooney and Hennessy (2013).
4. In the following analysis, any quantitative data or reference to specific audience segments relates to the post-viewing survey of AUJ. Qualitative comments from the DoS post-viewing survey are included in places to further illuminate key points.
5. Whilst Bilbo is *The Hobbit's* central narrative protagonist, many critics and respondents have noted the more prominent role afforded to Thorin in Jackson's adaptation.
6. It is problematic to speculate here, but it may again reflect a lower level of exposure to CGI intensive action films as a basis for comparison.

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