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9. GAMESCAPES: EXPLORATION AND VIRTUAL PRESENCE IN GAME-WORLDS

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ABSTRACT
An analysis of the scope for exploration and the extent to which impressions of presence are created in domestic videogames. This paper argues that exploration is an important dimension of play in many games, whether employed in relation to other objectives or as a source of pleasure in its own right. The first part of the paper examines the relationship between freedom to explore and spatial constraint, arguing that many games offer a balance between the two, the precise nature of which varies from one type of game to another. The second part of the paper considers the extent to which different types of game offer illusions of presence in the game-world, from the distanced perspective of management and strategy games to the greater impression of sensory immersion created in games rendered in the first person.

KEYWORDS
Videogames, exploration, navigation, presence, immersion

INTRODUCTION

Games offer a number of different pleasures, including in many cases the potential to explore and/or gain a sense of presence within the virtual world of the gamescape. Exploration may be linked closely to the pursuit of goals or missions structured into core gameplay activities, in order to advance the player through game levels. But it can also include scope to move more freely within and through a variety of on-screen landscapes, a pleasure that can be indulged for its own sake. More than simply a background setting, the world of the game is often as much a protagonist, or even antagonist, as its inhabitants. This paper, which forms part of a larger work-in-progress[1], is organized around analysis of two principal dimensions of the gamescape. We start by considering the degrees of freedom offered by different games, from the most restrictive to those which offer maximum potential for exploration. We then look at the degree to which games create for the player an impression of virtual presence within the gamescape, a mediated sense of spatial immersion within the on-screen world. Our focus ranges from the large scale – the way entire game worlds are structured and rendered navigable – to closer textural detail that seeks to fabricate an impression of virtual embodiment, immediacy and presence.

[1] The paper is part of a longer chapter on the same theme to appear in the authors' *Tomb Raiders and Space Invaders: Videogame Forms and Contexts*, forthcoming, London: I.B. Tauris & Co., 2005, which also addresses a range of other dimensions and pleasures of games.

DEGREES OF FREEDOM

At the most restrictive end of the spectrum are games that afford no scope for exploration. In classic examples such as *Pong* and *Tetris*, a single fixed screen-space constitutes the entire game arena, within which the player has very little room for any activity other than that required by immediate response to the central game task. A modicum of freedom is provided by *Pac-Man*, but within extremely limited single-frame confines and heavily constrained by the need to avoid enemies. A greater impression of movement through space is provided by side-scrolling games, such as *Super Mario Brothers*, but this also remains entirely restricted. Greater scope for exploration is usually associated with games that produce more detailed three-dimensional words through which the player-character moves, although many 3D games are not designed to encourage exploration. The main action of sports games, for example, is often confined to fixed tracks or arenas. In racing games, the track defines the path to be taken. Even in off-road rally games, such as the *Colin McRae Rally* series, the scope to venture off the track is usually very limited.

In some games the player-character is carried through the game-world in much the same manner as the occupant of a theme park ride, as if on rails, hence the name given to the rail-shooter format used as the basis for games such as *Star Fox* and as a component in some first-person shooters, including the *Medal of Honor* series in which the player-character is occasionally rooted to a position such as operating a machine gun fixed in the back of a truck. In many cases, lower degrees of freedom to explore are associated with older games designed for platforms with fewer processing resources than those of today. This correlation is far from absolute, however, as suggested by the fact that the rail-shooter format is still used today in otherwise innovative examples such as *Rez*, a third-person game in which freedom of movement is restricted to left/right and up/down motions (to acquire power-ups and shoot enemy viruses and firewalls) within a predefined trajectory through the simulated space of the interior of a computer.

Capacity for exploration also remains limited in many graphically rich 3D game-worlds, for at least two reasons. Resource management is one factor, even with ever-increasing processing power, because of the demands made by other game components such as graphics rendering or the implementation of particular gameplay options. The designers of The *Lord of the Rings*: *The Two Towers*, for example, choose to limit exploration in favour of filling the game with resource-intensive movie clips and high-resolution graphics. While the franchise might have lent itself to the exploratory freedom associated with a role-playing game, the game emphasizes the digital recreation of the film's battle scenes, placing the player-character directly in scenes from the film in which players have to fight their way through an amassed enemy horde. Scope for exploratory freedom is tightly constrained throughout, the emphasis on the game being on the building and honing of the player-character's beat-'em-up style fighting skills.

Restriction should not be understood only in negative terms, however. It is also the basis for many key gameplay effects that result from channeling the player or player-character in particular directions. This is especially true of what Jesper Juul terms 'games of progression', typically action-adventure or shooter games, in which the player's primary role is to realize a pre-existing structure of events [7]. Limiting and directing the movement of the player-character is essential to the creation of pleasurable effects such as fear and suspense in horror-based games, for example, or creating a linear narrative framework within which gameplay activities can be

situated. Narrative context, along with generic associations, is often structured into the gamescape in the form of what Henry Jenkins terms 'spatial stories', embedded in the material of the game-world [6].

Many 3D action-adventure or first-person shooter games occupy a space between the extremes of restriction and freedom to explore. A pre-set path is often combined with degrees of freedom to explore around the margins. The player-character is often required to move through and investigate the game space, to progress and also to find objects such as ammunition and health power-ups helpful or necessary to progression. This often involves periods of exploration that are not necessarily fruitful, but that may be enjoyable (or in some cases frustrating, or a balance between pleasure and frustration) in their own right. Many game spaces are designed specifically to provide scope for exploration, often including excessively convoluted structures (large or small) the primary motivation for which is to facilitate spatial investigation. Examples include what the designer Ernest Adams describes as the 'strange and wasteful design' of one building complex in *Quake* [2].

The precise balance between freedom and restriction varies from one game to another, as is the case with the distinction between rules and freedom in gameplay more generally. Most games can be characterized, at various levels, by the precise balance offered between the constraints created by rules and goals and the scope allowed for 'playing around' more freely within the game-world; between what Roger Callois terms *paidea*, play in its most spontaneous and unstructured forms, and *ludus*, which suggests the rule-structure within which *paidea* is often contained [4].[2] In the classic first-person shooter *Half Life*, for example, restriction predominates. The gamescape consists of seemingly endless sequences of corridors, ventilation ducts, stairwells and laboratories, through which the player is encouraged to move in a primarily linear fashion. Some scope is given for *paidea*, primarily in the form of non-essential destruction of the environment, but little in the way of freedom to explore. *The Tomb Raider* games, by contrast, offer larger traversable spaces in which, on balance, much more time is likely to be spent in exploration. Much of this is designed to be oriented primarily towards searching for material relevant to progression, but some scope is also provided for less goal-oriented investigation of space.

In some games, the player can only move a relatively short distance from the pre-structured path, often little more than a narrow corridor of navigable space. Appealing vistas often exist that cannot be explored. In others, wider latitude is allowed, as in *Silent Hill 2*, in which quite large areas of the mist-shrouded town in which the game is set are open for general exploration at any one time. Early sequences require the player to explore the space available in search of clues, but the environment can also be explored for its own sake. A different dynamic can be encouraged depending on the extent to which navi-

2 This is an issue explored at much greater length in its own right in the first chapter of *Tomb Raiders and Space Invaders.*

gational aids are provided in games that offer some margin for non-progressive exploration. Players of both the *Tomb Raider* games and *Enter the Matrix*, for example, have some freedom to spend time in what might prove to be fruitless exploration of blind alleys. This is far more likely to occur in the former, however, than the latter, in which a large on-screen arrow points constantly in the direction to be followed in the interests of rapid progression (in a game in which the player-characters move at greater than usual speed, further encouraging a fast, linear mode of progression). Navigational aids can be crude and arbitrary, as in *Enter the Matrix*, or given motivation in forms such as maps possessed by player-characters or, during driving missions in *The Getaway*, through a simple device in which vehicle indicators signal which way to turn.

Limits to exploration can be characterized as 'hard' boundaries, absolute restrictions in the game-playing arena, and 'soft' boundaries that act as temporary barriers but that can be traversed under certain conditions (a key needed to open a door, for example; hard boundaries can also be rendered soft in special circumstances such as the use of 'no-clip' cheat codes to enable the player-character to traverse otherwise solidly rendered structures). Soft boundaries, a product of obstacles set for the player, are usually given justification through the fictional-world activities in which the player-character is involved. Hard boundaries are also given plausible motivation, as far as is possible, to avoid impressions of arbitrariness that are likely to reduce the immersive qualities of a game.

This is easiest in interior settings, as Ernest Adams suggests, in which real-world spaces are also relatively small and confined by walls. In exteriors, artificial constraints are often naturalized though the use of settings such as islands or the use of impassable terrain such as mountains and swamps [1]. Where transgression of spatial limits is arbitrary, this is sometimes represented in terms that remain consistent with the particular fictional construction of the game-world: if the US military player-character strays too far from the main field of action in *Black Hawk Down*, for example, he is declared AWOL and the mission is failed; in *The Getaway*, the boundaries of the game-world are marked by realistically-motivated road-closure barriers.

Soft boundaries include the many environmental obstacles to the progress of the player-character found in games such as third-person action-adventures and first-person shooters: the precarious ledges, unstable floors and tricky jumping routines of the *Tomb Raider* series, for example. Progress through the game is also necessary to the opening up of space in strategy games such as *Civilization* and *Command and Conquer*: *Generals*, in which exploration is dependent on the movement of the player's resources across the game map. In *Civilization*, the game begins with most of the world in darkness, the contours of the gamescape and the deployment of rival powers revealed only gradually as the player sends figures out to explore by land or sea. The unveiling of new terrain has an appeal of its own, satisfying a sense of curiosity about what lies beyond the currently visible border, even in an example such as *Command and Conquer* in which it serves highly instrumental purposes in revealing the location of enemies, resources and key mission objectives.

The greatest scope for exploration is usually found in role-playing games, which fit into Juul's category of 'games of emergence', in which small numbers of initial rule-sets create the potential for a wide variety of outcomes. Role-playing games often create large gamescapes across which player-characters are considerably free to roam at will, the largest game-worlds being found in massively multiplayer role-playing games (MMORPGs) such as *EverQuest* and

Anarchy Online. Exploration for its own sake can be a substantial source of the appeal of such games, along with the central process of developing the capacities of the player-character and the opportunities provided for interaction with other players. Constraints still exist, however. Exploration can be enjoyed for its own sake, but only up to a point. Player-character development and/or collaborative action with other players are essential if some parts of the game-world are to become navigable in any safety. Any of the wild regions of *EverQuest* are home to monsters that pose a threat to the novice player, for example, while the Planes of Power regions are accessible only to player-characters of level 46 or above. The size and mode of implementation of the *EverQuest* world of Norrath is also such that it is broken up into separate zones, each of which has a limited number of points of entry and quite narrow confines, the boundaries of which often seem arbitrary – yet another set of mountains that cannot be scaled, for example.

The impression of uninterrupted freedom of exploration in *EverQuest* can also be hampered by the time lag that occurs when the player-character moves between one zone and another, the extent of which depends on the computing resources available to the player. This is the result of the manner in which the different geographical spaces of the game are implemented, each zone running on a separate computer as part of the cluster that comprises each of the servers on which the game can be played. In this respect *EverQuest* suffers in comparison with the less commercially successful *Asheron's Call*, which adopted a different system of load-balancing in which responsibility for geographical areas is divided among sub-servers, the result of which is the creation of what presents itself as a seamless world that creates a greater sense of unencumbered freedom of movement [3], more akin to that found in the large but less extensive landscape of single-player RPGs such as *The Elder Scrolls III: Morrowind*. In *Morrowind*, entirely hard boundaries are found only around the outer edges of the game world, although many soft boundaries, such as cliffs and lava streams, can only be negotiated with the aid of spells such as those creating the possibility of levitation. Gameplay strategies adapt to shortcomings such as the separation of zones in *EverQuest*, however. Pursuing monsters are escaped in the passage from one zone to another, which can prompt a strategy of embarking on dangerous combat from the relative safety of a position close to a zone boundary.

Players of games such as *EverQuest* or *Morrowind* can choose to emphasize exploration over other activities, but not absolutely. Some engagement in processes such as fighting enemies and taking on quests is required if the capabilities and equipment necessary for survival are to be obtained. Exploration looms larger in the equation than in games with more restricted geographical scope, but the design encourages a balance of activities rather than any exclusive focus of attention. The same is true of games such as *Grand Theft Auto III* and *The Getaway*. Each offers a progressive, mission-based structure located within an extensively explorable contemporary urban gamescape. In *The Getaway*, players are given freedom to roam, to walk or drive around a detailed simulation of the streets of central London, but not at all times. In a time-based driving mission, for example, failure to keep pace or to keep on track leads to mission failure and the need to start again. During a shooting or stealth-based task it is possible simply to walk out, hijack a car and indulge in the pleasures free-form driving. Exploration of this kind is often interrupted by the attentions of the police, but this can result in high-speed chases, crashes and assorted collateral damage that provides enjoyment that has no bearing on

progression through the linear structure of the game. *Grand Theft Auto III* and *Vice City* offer a wider choice of activities – the acceptance of missions given to the player-character by crime bosses, the successful achievement of which leads to the advancement of the character, or the option to engage in freelance activities, such as random acts of exploration, driving, vehicle theft or violence. *The Getaway* offers a single game-space within which soft boundary restraints come and go, depending on the nature of the latest mission. Soft boundaries play a more fixed role in *Grand Theft Auto III*, restricting access to different parts of the Liberty City setting depending on the state of the player's progress through the game. At the start, for example, access is restricted to the island of Portland, a restriction given diegetic motivation by the destruction in the opening sequence of the bridge that leads to the next zone, Staunton Island, and signs announcing that the subway is closed.

Different kinds of pleasures result from freedom to explore at will and the restriction that results from a more choreographed gameplay experience. Many games offer a balance between the two, seeking to give the best of both worlds: a world that players can navigate for themselves, up to a point, and one into which a number of specific activities have been orchestrated by the designers. It is not only the balance of exploratory freedom and restriction that shapes the player's experience of the gamescape, however. It is also important to consider the extent to which, and how, the player occupies or is given a sense of presence within the game-space.

DEGREES OF PRESENCE

In some games, regardless of the scope for exploration, the player occupies a space clearly distanced and separate from the game-world. In others, the player is given an illusion of presence, of being located inside the gamescape, directly in the thick of the action. Distinctions between degrees of presence are closely correlated with differences in the visual perspective provided on the game-world. The most distanced games tend to be those that use god-like aerial perspectives. The greatest sense of presence, or immersion in the gamescape, is usually provided by games that offer the first-person perspective of a figure located within the fictional world of the game. In between are games that offer a variety of third-person views, located inside the game-world but not directly through the eyes of the player-character. Impressions of presence can also differ within these broad categories, however, depending on a number of other factors.

The most distanced and abstracted view is found in management, strategy and other 'god' games, in which players have a high degree of agency – an ability to affect events in the game-world – but little sense of occupation of the fictional world itself. The player is often positioned as a character in such games – the mayor of a city in *Sim City*, the leader of a people in *Civilization*, the general in charge of an army in *Command and Conquer: Generals* – but one that remains absent from the fictional space of the on-screen world itself. A marker of the lack of in-world presence created in such games is the frequent use of an isometric perspective, one in which parallel lines remain parallel rather than disappearing to the vanishing point familiar from conventions of linear perspective. Linear perspective, often used in first- and third-person games, is oriented towards a single viewing position, a place occupied by the player that is directly related to the internal architecture of the gamescape. An isometric perspective presents an impossibly 'objective' viewpoint, appropriate to that of a disembodied and god-like abstract player position.

Later versions of classic management or strategy games, such as the *Civilization* and *Sim City* series, offer increasing detailed three-dimensional graphics, including an ability in *Sim City 4* to look more closely at the cityscape, to detect signs of affluence or decline at the local level. A barrier remains, however, between the overhead view and any sense of presence at street level. Characters from *The Sims* can be moved into properties in *Sim City 4*, but not players or player-characters themselves. An even more detailed, close-up view can be obtained in the strategy game *Black and White*, in which players can zoom from on high to gain a point-of-view at the same level as that of the subjects of their world. The view is still disembodied, however, rather than creating any sense of presence on the ground.

Third-person games give the player a representative clearly located inside the gamescape, an avatar that acts as the player's agent in the game. A greater sense can be established of what might be termed being-in-the-game-world, a phenomenological impression of immersion in the gamescape. The sense of presence created by third-person games is least strong in early two-dimensional and isometric examples in which the player's source of representation is somewhat rudimentary: the abstracted chomping mouth of *Pac-Man* or the few pixels that constitute a spaceship in *Defender*. Filmed characters used in some two-dimensional games such as *Phantasmagoria* provide less abstract and more detailed characters, but a combination of static frames and a point-and-click mode of movement creates a fragmented and distancing impression, characteristics also found in games such as the *Myst* series and *Baldur's Gate*.

A far stronger sense of presence is established in fully three-dimensional third-person games, in which the player's point-of-view is often anchored directly to the movement of the player-character. A more seamless experience of the game-world is created. Graphical representation is redrawn constantly to the screen, creating an impression of continuous movement through navigable space. A player-character, by definition, acts as the player's on-screen embodiment in the gamescape. The virtual camera of third-person games is mainly located behind and slightly above the character, making the player's experience conditional on the orientation of the character. In many cases the player can also move the camera independently of the player-character, swinging it around past or over the top of the character to gain a different perspective on the game-world. This is often important to the achievement of gameplay activities – getting a better sense of the relative position of Lara Croft in the landscape to perform a precise jumping maneuver, for example – but it alters the precise manner in which the player's presence is established. Character-independent movement ruptures, if momentarily, the alignment of player and player-character. A more disjunctive fracture of player/player-character orientation is found in third-person games such as the *Resident Evil* series and *Dino Crisis* that use fixed camera angles not connected to the perspective of the character. In this case, the forward movement of the character can require movement of the controller in opposite directions, depending on whether a particular image frames the character from ahead or behind, a disorienting feature likely to reduce the strength of any impression of presence.

The fact that the player's sense of being-in-the-game- world is mediated is made explicit in third-person games, of many varieties, because the player-character can be seen, as an entity clearly separate from the player. Instances in which the character acts independently of the player – Lara looking in a particular direction, according to a preordained cue, or a player-character speaking to a non-player character – act as reminders of the distance

between player and avatar. At times, players might experience a strong sense of being invested in, bound to or in synch with the character, but they never step fully into the character's shoes, entirely present in the gamescape. The player is not positioned as the direct agent of action in the game-world, a key factor distinguishing the degree to which an impression of presence is created in third- and first-person games.

Linear perspective conventions are used in many third-person games to create the impression of a world that is centred on, and revolves around, the position of the player and/or the player-character. Perspective lines that recede to a vanishing point inside the image imply a viewing position in front of the screen. In third-person games, a departure can exist between this point, in front of the screen, and the exact position of the in-game avatar within the frame. A more immediate centering of the gamescape on the position of the player is found in first-person games, in which the impression is given of a more directly subjective player experience of the game-world. First-person games bind the player more directly into the gamescape. The game-world is experienced at eye level, a viewpoint experienced as directly consonant with movements made by the player. First-person interfaces create the impression that the player can look right, left, up and down within an on-screen world that appears to envelop the player, creating a stronger illusion of presence. Hands and arms, or a weapon held by the player-character, are often visible at the lower edge of the screen, approximating the position they would occupy if the screen image really was the subjective point-of-view of the player – an innovation introduced in one of the first three-dimensional games, *Wolfenstein 3D*. Legs and feet can also enter the screen when kicking functions are used.

Diegetic sound is also designed to centre on the player's in-game perspective, especially in first-person games and when experienced through surround-sound speaker systems or with the use of headphones that cut out extraneous sound. Sound can also be used to create an illusion of physical presence in other ways, such as marking the footfall of player-characters as they move within the gamescape. Changes in the sound of footsteps according to the nature of the surface on which they walk can heighten the impression that the avatar occupies a world of some substance, either as an added extra or a more central aspect of gameplay strategy. The latter applies to stealth games such as *Tom Clancy's Splinter Cell*, in which the movement of the player-character in the vicinity of enemies has to take into account the level of noise made by different materials, special care having to be taken on noisy surfaces such as metal or wood. In this case, the exploitation of such effects is more likely to occur in third-person than first-person games, the former lending themselves more readily to a perspective in which the nature of surfaces textures is apparent to the player.

First-person games typically provide some kind of representation of the player-character at the start of a game, and in cut-scenes, where these are used. The sense that the player's experience is mediated through the character is much less evident than in third-person games, however, especially in the thick of the action. The first-person experience is closer to one of immediacy, although reminders of mediation can be frequent: direct address by name to the character from non-player-characters, for example, or the abrupt interruption that occurs when the player-character dies and the player is thrown out of the game-world and into the non-diegetic routines of reloading and starting again. That the third-person perspective implies a player position further outside the gamescape is underlined by the fact that the

moment of death in first-person games is often accompanied by a shift into a third-person view, a withdrawal that enables players to witness the death throes of their avatar.

Even at the frenzied height of the action in a first-person shooter, with the emphasis on attack and survival, overt reminders of the mediated nature of the experience exist in the form of screen displays to which the player must remain attentive – crucial health and ammunition gauges, for example, and inventories of available weapons and other supplies. These can be switched off, in some cases, including Vietcong, for the player to enjoy what is advertised as a more 'realistic' and less overtly mediated experience. Information sources can also be realistically motivated, as the heads-up display of a helmet worn by the player-character, particularly in science fiction oriented games such as *Halo* or *Metroid Prime*. In many cases, however, whether they are overlaid directly on the image of the world or occupy a space outside, on the margins, attention to such displays impinges on any illusion of presence within the game-space.

Qualities of vision and sound are usually the most potent sources of impressions of presence in games, but an important contribution can also be made by the use of haptic feedback devices that work on the sense of touch. An ersatz impression of physical impact is quite common in the form of a shaking of the image at moments of impact on the player-character, a device that contributes to the sense of immersion in first-person games and is also used on occasion from the more distanced perspective of a strategy game, as in the case of large in-game explosions in *Command and Conquer: Generals*. Two main sources of real haptic feedback are usually distinguished: force feedback, which creates the impression of a sensation of force being imparted on muscles and tendons, and tactile feedback that stimulates nerve endings near the surface of the skin [5]. The most common forms of force feedback in games are the use of joystick or steering wheel controllers equipped with electric motors designed to provide resistance to the player's actions. This can be an effective way of increasing an impression of presence, giving some sense of real weight and mass to an experience such as pushing a racing car to its limits on a track.

Tactile feedback can also be provided through a steering wheel interface, or console controllers, in the form of vibrations designed to create the impression of driving over rough ground in a rally game or departing from the tarmac on a racetrack. The most common source of tactile feedback, however, is the vibration created by handsets such as the PlayStation 'dual-shock' controller. In many cases the effect is crude and lacking in discrimination, of only limited potency in creating an impression of presence. The same basic vibrating effect is provided for a range of very different experiences: falling from a height, being hit by a bullet or sword, or being attacked by a monster. In some cases, tactile feedback can provide a sensory impression more closely analogous to a particular on-screen activity, although this is not generally the case. In *Splinter Cell* played on the X-Box, for example, the use of a lock-pick to open doors entails a jiggling manipulation of the left stick controller in a manner not dissimilar to what might be imagined to be involved in the on-screen act, vibrations indicating the points at which each part of the lock falls into place.

The term 'presence' is often associated with concepts of virtual reality (VR), of which games are often seen as a variant, if relatively weak in the existing scale of possibilities. If typical characteristics of VR systems are navigation of 3D graphical environments, interaction,

presence and immersion, many games qualify up to a point [11]. With the exception of small number of specialized VR games, in which the player is equipped with a head-mounted display that shuts off external sources of sight and sound, games fall well short of being truly immersive in terms of sensory perceptions. The illusion of presence or immersion created by contemporary game design and technology is clearly less than that provided by VR systems in which occupants experience a sense of being entirely surrounded by computer-generated environments, often able to reach out and manipulate virtual objects with a data-glove. In a scale of varying degrees to which an illusion of presence can be created, games occupy a position somewhere between virtual reality and non-interactive screen media such as large-format cinema, conventional cinema, widescreen and conventional television.

The creation of impressions of presence or immersion is not only dependent on factors relating to sensory perception such as those on which this section has focused so far. If games create a relatively weak sense of virtual embodiment in the gamescape – or if some games create a weaker sense than others – compensation can be found in other dimensions. Terms such as presence and immersion are often used in a vague and sometimes interchangeable ways, as Alison McMahan suggests, that fail to discriminate between different dimensions of the overall game-playing experience [10]. A distinction needs to be made, for example, between perceptual immersion – limited by the technological basis of conventional desktop computer or console/television games, and in commercial arcade settings – and psychological immersion in gameplay activities, which can be very strong even where no great sense of sensory presence is involved, as is often the case in strategy games of the kind discussed above. A number of factors other than those related to impressions of sensory presence can contribute to, or undermine, the extent to which players experience a state of being immersively 'wrapped-up' in a game. Compelling and well balanced gameplay activities such as strategic management, solving puzzles, negotiating obstacles or engaging in combat can occupy the cognitive and perceptual resources of players to a sufficient extent in themselves to create an immersive state in which aspects of the external world are eclipsed from attention, an aspect of gameplay we examine in detail elsewhere.[3]

Other factors include what Matthew Lombard and Theresa Ditton, in a review of studies of presence across a range of media, term 'content variables' and 'media-user variables' [9]. Content variables in games include elements such as the degree of surface realism with which the gamescape is rendered, but also, and often more importantly, the degree of consistency with which the game-world is constructed and how the player can act in and act on the virtual environment. Inconsistency – the fact in *Primal*, for example, that one player-character can scale walls, but only some, or that some walls can be blasted to rubble in *Red Faction*, but not all – is one of the

3 *Tomb Raiders and Space Invaders*, chapter 1

greatest threats to the creation of impressions of either immersion or presence. A sense of agency in the game-world – the ability to affect its contents in ways at least to some extent approximate to the equivalent in the real world – can be a major source of impressions of embodied presence. Agency can only ever be limited, however, and is usually directed towards the performance of particular gameplay tasks. Media-user variables include important factors such as the degree to which individual players are willing to suspend disbelief, not to be distracted by elements that might reduce the impression of presence, and the player's familiarity with the medium [9]. An experienced player, familiar with the nuances and full scope of a game or a game-genre, might also be expected to get more 'into', and get more out of, any particular title. The social dimension of gameplay can also contribute significantly to its immersive and engaging qualities, especially in multiplayer online games such as *EverQuest* which create what Lisbeth Klastrup terms a virtual social world, 'both something imagined, something "fake" (something pretending to be real, as we know it from realistic fiction) and something lived in, an actualized reality we create, inhabit and share with other people [...].' [8]

CONCLUSION

Degrees of freedom of exploration and the extent to which an illusion of presence in the game-world is created are significant aspects of games, although they need to be understood in the context of other gameplay activities and attributes. A negative correlation might be expected to exist between the two, other factors being equal, if only because of the resource demands imposed by both extensive scope for exploration and the creation of a stronger sense of embodied presence. This is not necessarily the case, however, given the limited extent to which most games invest in anything more than a relatively minimal sense of sensory immersion. Games such as *EverQuest* and *Morrowind* that offer large-scale scope for free exploration can be experienced in either first or third person modes, which suggests that the greater degree of presence created in first person is, in these cases and many others, a neutral factor in terms of data and processing resources. A stronger investment in sensory embodiment – extensive use of more discriminating haptic interfaces, for example – might alter the equation, but this is not generally the case in contemporary games. Freedom of exploration can certainly be a factor in increasing the sense of presence created by a game, reducing at least one form of what can seem like arbitrary restriction. Games that create stronger impressions of presence are not necessarily those in which exploration looms largest, however, although they may make exploration a relatively less abstract-seeming experience.

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